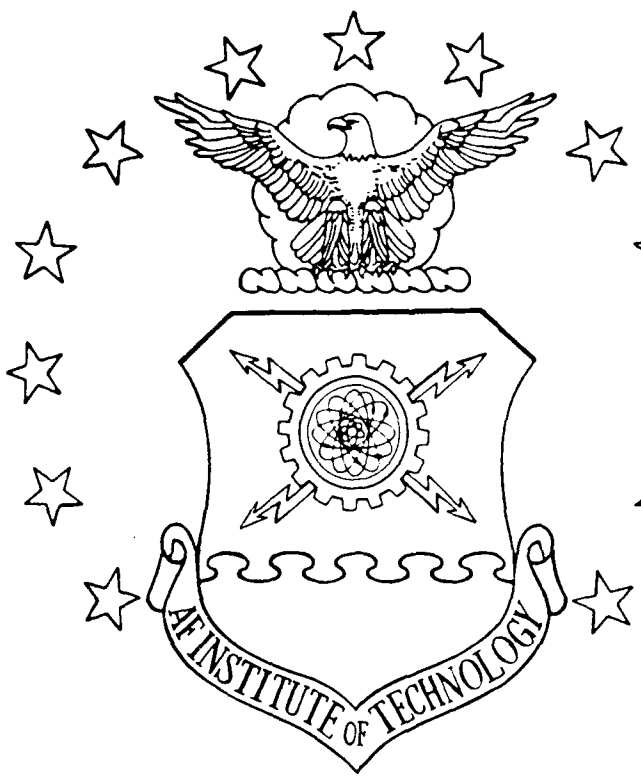

A STUDY OF THE ATTITUDES OF ACQUISITION MANAGERS AND ENGINEERS AT AERONAUTICAL SYSTEMS DIVISION AND SPACE SYSTEMS DIVISION

THESIS

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Captain, USAF

AFIT/GSM/LSY/89S-31

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THESIS

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Systems Management

Steven L. Pearson, B.S.

Captain, USAF

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Preface

The purpose of this research was to provide better insight into the motivations of junior Air Force officers in the 27xx and 28xx career fields in the hope of increasing the retention rates of officers in these fields. The research was limited to officers at two product divisions but the responses of the officers were more generic in nature and should apply throughout the 27xx and 28xx career fields in Systems Command.

In performing this research and writing this thesis I had a great deal of help from others. I am deeply indebted to my thesis advisor, Major Thomas Triscari, Jr., for his patience, understanding, and continued guidance over great distances. I also would like to thank Dr. Charles R. Fenno for his support and interest in the project. Finally, I would like to thank my wife Teri and daughter Stephanie for enduring the many long hours I spent upstairs at the computer. Without their support and understanding I never would have completed this effort.

Steven L. Pearson

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Abstract

Air Force junior officers in the 27xx (acquisition manager) and 28xx (engineer) career fields at Aeronautical Systems Division (ASD) and Space Systems Division (SSD) were surveyed to determine various attitudes toward their jobs. The purpose behind examining the job attitudes at ASD and SSD was to determine if the matrix organization at ASD was aiding in the retention of engineers and increasing the overall job satisfaction of Air Force junior officers in these two fields. It was hypothesized that ASD was better at distinguishing the engineering and management backgrounds of its officers through use of the matrix organization and that officers in jobs more closely related to their education and background would report more positive career intentions. The matrix organization at ASD attempts to match engineer and acquisition manager personnel to jobs which are closer to their backgrounds and education while SSD makes much less of a distinction between the two career fields. Four variables were measured in the survey: applicability of education to the job, expectations of the officer about the job, overall job satisfaction, and career intention. The results revealed a significant difference between ASD and SSD in the degree to which officers believed

their education was applicable to their jobs and the expectations of officers prior to entering active duty. No differences were found between product divisions in job satisfaction or career intent. However, the survey included an area for comments which almost half of the respondents utilized. Of the 156 surveys containing comments, over 90% expressed strong negative emotions toward their job indicating a significant problem exists within the junior officer ranks. All comments were included in the appendix and a brief overview of the typical complaint categories is given.

A STUDY OF THE ATTITUDES OF ACQUISITION MANAGERS AND ENGINEERS AT AERONAUTICAL SYSTEMS DIVISION AND SPACE SYSTEMS DIVISION

I. Introduction

Background

Retention of experienced personnel is a problem with which the Air Force has become extremely familiar. Pilot shortages have been a continual problem since Air Force officials first recognized it in 1977. Retention of Military Airlift Command (MAC) pilots that year was only 45 percent compared to the overall Air Force average of 62.5 percent (13:71). The retention of engineers has been just as difficult. Engineer retention has dropped 20 percent between 1984 and 1987 to a mere 41 percent (5:5). In the early 1980's, Air Force officials convinced Congress that engineer retention problems were caused in part by low pay of Air Force engineers in comparison to their civilian counterparts (14:69). The solution was the implementation of a $12,000 bonus to any engineering officer who signed up for another four years. Ninety-five percent of those eligible accepted the bonus (11:3). The program officially

began in October 1982 and was completely phased out in fiscal year 1985 when electrical engineers were dropped from the list of critically manned positions (21:2-3; 10:15). During this period of retention problems and monetary solutions, numerous studies were undertaken to determine what really was causing Air Force personnel to resign and begin a new career in the civilian sector. Not all of them though, were completely convinced that the solution was through increased pay. As early as 1978, HQ USAF officials were urging commanders and supervisors to "eliminate or lessen irritants that drive pilots away . . . and improve job satisfaction" (13:71). Captain Mun Kwon's studies of retention and recruitment in the defense industry found that

> skilled workers are leaving the military for private industry organizations because of the strong influence of non economic factors such as poor job choices, inadequate promotion system, and poor chance to use educational skills in the military. (17:42)

This research builds upon the idea that pay is not the sole answer to the problem. It assumes that the problem is more with the job itself and the degree to which each person is satisfied with the job; an assumption supported by much of the literature.

Specific Issue

This research effort was directed toward two product divisions within Air Force Systems Command (AFSC) which have been known historically to treat their 27xx (acquisition manager) and 28xx (engineer) officer resources in dramatically different ways. At Aeronautical Systems Division (ASD) a clearer distinction is made between the two career fields. The acquisition managers (27xx) are assigned directly to a program office and charged with the responsibility of managing a portion of the total system's acquisition. The engineers (28xx) are drawn from a pool by the program offices to apply their engineering skills on an as needed basis. Space Systems Division (SSD) has been known to make much less of a distinction between the two fields and in many cases the 27xx and 28xx personnel perform the same tasks. It was hypothesized that the officers assigned to ASD would be more positive in their job attitudes and career intentions because they were being utilized in a job which more closely matched their education, background, and skills.

Scope

The populations under study were the 27xx and 28xx officers at ASD and SSD who were still fulfilling their initial active duty service commitments at the time the

survey was distributed in May 1989. By excluding those officers who had already fulfilled their commitments, it was believed that a truer picture of the attitudes influencing career intention decisions would be obtained.

Research Objectives

The original hypothesis was that the attitudes of the 27xx and 28xx officers at ASD toward their jobs would be slightly more positive than their counterparts at SSD. Specific research questions addressed were:

1) What expectations concerning the job did the officers have prior to entering the Air Force?

2) How much did the officers feel their education and background applied to their jobs?

3) Overall, how satisfied were they with the job?

4) What were their career intentions following completion of their active duty service commitments?

Summary

The Air Force has historically pursued a policy of increased pay leads to increased retention. Not all researchers, however, agree that pay is the sole reason people resign from the Air Force. Studies have shown in many cases the degree to which a person is satisfied with his job strongly influences decisions on career intention. This research effort builds further upon this theory in an

effort to identify how to make people more satisfied in their jobs. Using engineers and acquisition managers at ASD and SSD, it compared the attitudes of the officers within Air Force Systems Command to determine if changes in the job itself to better reflect the individuals education and background could increase retention.

II. Literature Review

Introduction

The literature is replete with articles and studies on the motivation and retention of personnel. Numerous retention studies have been done in the Air Force, especially in the areas of pilot and engineer retention. Before examining any of the literature, however, it is useful to review several of the major motivational and need theories as a reminder of the factors which theoretically motivate people. To that end, a brief review of Maslow's Need Hierarchy Theory, Herzberg's Job Enrichment Model, and the Expectancy/Valence Theory of motivation is presented. An evaluation of several Air Force studies in which pay and/or bonuses is assumed to be the best motivator of personnel is then presented. Next is a review of Air Force studies in which increased pay or bonuses is not assumed to be the best motivator but only one of several factors considered in attempting to discover the definitive list of motivational factors. Finally, an analysis of two civilian studies on motivation and retention is presented to show the similarities between the Air Force and the civilian industry.

Maslow's Hierarchy of Needs

The identification of the variables which influence motivation and employee retention has been a subject of research for years. One of the most popular theories was proposed by Abraham Maslow in the 1940's. Maslow's need hierarchy theory consists of two premises; 1) "people are motivated by a desire to simultaneously satisfy several types of specific needs," and 2) "these needs are arranged in a hierarchical form and people work their way through this hierarchy as their needs are satisfied" (6:96). Maslow divided his hierarchy into two types of needs; deficiency and growth needs. Deficiency needs relate to an individual's safety and continued existence while growth needs satisfy a person's desire to develop and achieve one's potential. These two broad categories are divided further into five general motivating needs as described below. In ascending order of importance they are:

Deficiency Needs

1. Physiological Needs. The most basic needs, including the needs for food, water, and sex.
2. Safety Needs. The need to provide a safe and secure physical and emotional environment, one that is free from threats to continued existence.
3. Belongingness Needs. The desire to be accepted by ones peers, to have friendships, and to be loved.

Growth Needs

4. Esteem Needs. The desire to have a worthy self-image and to receive recognition, attention, and appreciation from others for one's contributions.
5. Self-actualization Needs. The need for self-fulfillment, the highest need category. The person is concerned with developing his or her full potential as

an individual, becoming all that it is possible to become. (6:96)

Herzberg's Job Enrichment Model

Another view was espoused by Frederick Herzberg in the way employees are motivated. Herzberg divided the factors which were intrinsic to the job itself into two categories. The satisfying experiences he called motivators and "included variables like achievement, recognition, responsibility, advancement, and personal growth" (6:168). The unsatisfying experiences were called hygiene factors and "included salary, company policies, supervisory style, and co-worker relations" (6:169). Herzberg contended that the real way to motivate employees was to focus on the motivation factors in the job itself. Most management policies at the time dealt more with the hygiene factors. Herzberg's job enrichment model proposed several areas that could be changed in order to enrich the job. They include:

- Control over resources. Employees should have maximum control over the mechanisms of task performance.
- Accountability. Employees should be held accountable for their performance.
- Feedback. Supervisors should provide direct, clear, and frequent feedback.
- Work pace. Within limits, employees should set their own workpace.
- Achievement opportunities. Jobs should allow employees to experience a feeling of accomplishment.
- Personal growth and development. Employees should be able to learn new procedures on the job and to experience some personal growth. (6:169)

The job enrichment model takes a different view of workers and the factors which motivate them. It assumes that workers want to be creative and work on new problems. Daft and Steers claim Herzberg's theory "assumes that money is not the only important motivator of good performance" (6:169). As a hygiene factor, salary is never a motivator but instead the lack of adequate pay contributes to the unsatisfying experiences of the employee.

Expectancy/Valence Theory

One last theory which also should be explored is the expectancy/valence theory of Lewin and Tolman. In this theory, "motivation is determined by a combination of expectancy and valences" (6:103). Expectancy is a probabilistic belief by the individual that a certain action will result in some outcome. The expectancy is usually given somewhere in the range of 0 (no chance of the outcome) to 1.0 (100% chance of the outcome). Valence refers to the value the individual has set on the outcome. Values range from -1.0 (highly undesirable) to +1.0 (highly desirable).

Expectancies are further divided into effort-performance (E-P) expectancies and performance-outcome (P-O) expectancies. An E-P expectancy is where an employee believes that working overtime will lead to a higher level of output. A P-O expectancy is where the employee believes

that the higher level of output will lead to a pay raise. To compute employee motivation, the values of the employees E-P expectancy, P-O expectancy, and valence are multiplied. All three factors must therefore be high in order for the employee to be motivated (6:103-104).

Pay/Bonus Studies

Williams. Several studies attempted to tie an increase in pay or a bonus system to officer, and more specifically, engineer retention. In 1980 Captain Kenneth Williams study entitled "A System Dynamics Model for Assessing the Cost-Effectiveness of USAF Engineering Officer Compensation Policies" investigated the impact of increased pay (bonuses) on retention. Williams chose compensation as the decision variable because he believed that "salary has substantial influence on career motivation" (27:xii). Williams based this belief on the responses from engineers in the most recent Air Force Quality of Life (AFQOL) Survey. The problem here is in determining whether financial factors (pay, bonuses) are positive or negative motivators. Using Herzberg's job enrichment model, for pay to become a positive motivator it must become a motivational factor as opposed to a hygiene factor. As a hygiene factor, the lack of pay has a strong negative influence but will not serve to motivate the individual. In determining whether pay is a

positive motivator or negative influence on the unsatisfying experiences of the job, the AFQOL survey asked two questions; 1) which factor would influence you the most NOT to make the Air Force a career? and 2) which factor would influence you the most to make the Air Force a career? The results of the two questions for 28xx officers (engineers) are shown below:

Negative Career Decision Factors

Factor which would influence you most NOT to make the Air Force a career.

Pay and allowances	45%
Family separation	5%
AF policies and procedures	5%
My Air Force job	5%
Little say in future assignments	6%
Promotion system	10%
Insecurity of Air Force life	6%
Promotion opportunity	4%
Leadership/supervision	3%
Frequent PCS moves	1%
Housing	1%
Fringe benefits	5%
Air Force people	1%
Some other factor	3%
Nothing unfavorable	3%

Affirmative Career Decision Factors

Factor which would influence you most to make the Air Force a career.

Pay and allowances*	9%
Training and education	11%
Retirement	13%
Having a say in future assignments	1%
Travel and new experiences	2%
My Air Force job	28%
Security of Air Force life	5%
Promotion system	10%
Service to country	9%
Fringe benefits*	0%
AF leadership/supervision	2%
AF policy & procedures	0%
Housing	0%
Some other factor	6%

(27:44-45)

Of the negative factors, Williams considered pay and allowances, promotion system, promotion opportunity, and fringe benefits as factors related to compensation. Of the affirmative factors, retirement was substituted for promotion system as a factor related to compensation. Those factors marked with an asterisk are the ones Williams considered to be compensation related (27:44-45).

Williams based his study on the negative impact of pay. According to Herzberg's theory, salary is a hygiene factor and contributes to an employees "unsatisfying experiences" (6:168). Higher pay will decrease the probability of these unsatisfying experiences from occurring but will not lead to higher employee motivation. The top four factors which influence a person not to make the Air Force a career are

not motivators but instead, hygiene factors; pay and allowances, promotion system, little say in future assignments, and insecurity of Air Force life. Conversely, the number one motivator of officers toward making the Air Force a career is the job itself (28% of respondents). As Herzberg's theory predicts, changes in the nature of the job itself will improve employee motivation.

Fucillo. Captain James Fucillo's thesis in 1981 entitled "A Review of the Air Force Bonus Pay System and an Investigation of a Proposed Scientist/Engineer Bonus Pay System" also assumed higher military pay was the answer to the retention problem. Fucillo found that on the average a $15,000 bonus would entice officers who were undecided or indicated they probably would not stay in the Air Force to commit respectively for 3.27 and 3.16 more years. The officers indicating a definite decision to separate from the Air Force would commit for only another 1.4 years for the $15,000 bonus (12:36). Fucillo did point out that the real problem is not the number of engineers and scientists the Air Force has on active duty but their low experience level. In 1981, Fucillo claimed the engineering career field was 195% manned at the lieutenant level but only 60% manned at the captain level (12:5). The problem has not gotten much better. The latest manning percentages show the engineering career field manned at over 160% at the lieutenant level and

seriously undermanned at the captain and field grade levels (26). In his recommendations, Fucillo recognized that increasing the pay of engineers and scientists in the Air Force may not be the best answer to the retention problem. His third recommendation for further research suggested his survey be extended "to determine if pay is the primary reason for low scientist and engineer retention rates" (12:37).

Miller. Captain Douglas Miller's 1986 study of "Engineering and Scientific Career Continuation Pay (ESCCP) and the Retention of Air Force Engineering Officers" examined the impact of the bonus pay program on retention. Miller discovered that of the nineteen motivational factors considered, salary ranked 17th in the list of most influential on career decisions (21:31). The top ten factors were:

1) Retirement Benefits
2) Responsibility
3) Achievement
4) Education and Skills
5) Work Itself
6) Security
7) Patriotism
8) Interpersonal Relations
9) Family
10) Advancement (21:33)

It is interesting to note that retirement benefits leads the list. This, however, is not extremely surprising in light of the time this survey was conducted. Defense budgets and

particularly the military retirement system were under close scrutiny by Congress for potential areas of savings (19:17). It is therefore not too surprising that any survey would show retirement benefits as being important. Also of no surprise, if we believe Herzberg's theory, are the subsequent four motivational factors. All deal in some way with the nature of the job itself and, theoretically, if we focus on improving these factors, employees will be more motivated.

Other Air Force Studies

Not all research has assumed increased pay is the panacea for the retention problem. Other studies conducted by Air Force researchers have attempted not to prove increased pay is the answer to the retention problem, but instead, tried to identify the factors which are most influential on career intent and retention. Using these factors they endeavored to model them into a regression equation which would predict the retention of specific categories of officer and enlisted personnel in the future. Based upon their literature reviews, many of the researchers chose career intent as the criterion variable for their regression models because "the best indicator of actual employee turnover is the employee's intention to stay with or leave the organization" (3:5).

Patterson. In his 1977 study "An Analysis of Career Intent and Job Satisfaction of First Term Air Force Personnel," Captain James Patterson made two notable discoveries. First, he found that career intent when plotted over time started high, declined slightly and then began to increase again. Patterson speculates that "this could indicate that personnel are entering the Air Force with high expectations which later prove to be unrealistic" (23:32). Second, Patterson claimed that the factors affecting career intent and job satisfaction were not the same. According to his research, those which influenced career intent most were:

- importance of the retirement benefit
- desirability of living on an Air Force base
- job satisfaction
- personal growth satisfaction (23:xi).

The factors most associated with job satisfaction were:

- job challenge
- use of training and ability (23:xi).

Patterson states, "job satisfaction was only studied in the hope that career intent might be better and more fully understood" (23:93). He proposes, however, that since job satisfaction is so strongly tied to career intent, the "two main descriptors of job satisfaction can be used to more fully describe career intent" (23:93). As shown later, this

agrees with a civilian study done by Price and Mueller which shows turnover is influenced primarily by career intent which itself is significantly influenced by job satisfaction (24:555).

Baughman and Darnell. Captains James Baughman and Michael Darnell in their 1982 study on "An Investigation of the Effects of Pay Inequity, Organizational Commitment, and Job Satisfaction on Career Intent" argue that the "retention issue is more complex than the 'higher pay leads to higher retention' theory is capable of recognizing' (3:4). Based upon the lack of research on the perceived disparity between the military and civilian pay structures, they argued it is "conceivable that other factors could outweigh the pay issue in an individual's decision to remain in or leave the USAF" (3:4). As the criterion variable for their regression model, Baughman and Darnell also selected intent to leave/stay. They divided their independent variables into three categories; pay inequity, organizational commitment, and job satisfaction. The variables they selected to measure each of these categories were:

Pay Inequity

- Perceived pay differential
- Opportunity for higher paying job
- Education
- Tenure
- Age

Organizational Commitment

- Patriotism
- Family/friends attitude toward USAF
- Retirement benefits
- Job security
- Past upward mobility
- Potential upward mobility
- Social involvement
- Performance
- Equity of treatment
- Tenure
- Age

Job Satisfaction

- Patriotism
- Routinization
- Attitude toward career field
- Opportunity for more enjoyable job
- Job Security
- Performance
- Equity of treatment
- Education
- Tenure
- Age (3:15)

Baughman and Darnell found the most significant predictor of intent to stay was the opportunity for a more enjoyable job with a r-squared value of .155. They defined this as "the ease with which individuals perceive that they can obtain a civilian job that they would enjoy more than their current USAF job" (3:31). They found however, this variable was not a statistically significant predictor of job satisfaction as originally believed, but instead, was directly influencing the dependent variable, intent to leave/stay (3:51-52). Manipulation of the independent variables into a revised model revealed organizational commitment as the best

predictor of intent. Five variables were used to predict organizational commitment and five additional variables impacted intent to stay directly with an overall r-squared of 0.57 for the revised regression model. The variables influencing organizational commitment were:

Family/Friends Attitudes Toward USAF
Social Involvement
Opportunity for a More Enjoyable Job
Potential Upward Mobility
Patriotism

Those directly influencing intent to stay were:

Tenure
Potential Upward Mobility
Sex
Opportunity for a More Enjoyable Job
Age Group (3:58)

Baughman and Darnell reported a potential problem in distinguishing between organizational commitment and intent to stay in their survey which may have confounded the results (3:59-60). What is noteworthy, nevertheless, is the presence of potential upward mobility, a strong motivator, in the list of influential variables for both organizational commitment and intent to stay.

Lazar and Maloney. An ambitious study by Captains Lazar and Maloney attempted to determine the factors which influence the career decisions of officer pilots, navigators, scientists and engineers, and medical personnel. They also attempted to identify these same factors for the enlisted personnel in certain aircraft maintenance

specialties (18:5). Like many other researchers, they used as the dependent variable career intent and assumed it was dependent on a relatively small number of independent variables (18:6-7). Based upon their literature review, job satisfaction, health care satisfaction, free time satisfaction, job autonomy, institutionalism, and demographic data were chosen as the independent variables. The authors used response data from the 1977 and 1980 Air Force Quality of Life Surveys for the study. With the 1977 data they were able to develop a model for engineers and scientists with an r-square of only 0.1915. The results for 1980 were not much better with an r-square of 0.2148. Despite their disappointing results in developing a better model, Lazar and Maloney did make two important discoveries. First, because of the broad nature of their study, they found the factors which influence one group did not necessarily influence another group to the same extent. It was the author's opinion that in order to have the greatest effectiveness, Air Force leaders need to treat groups individually, versus making broad policies to aid in increasing retention (18:109). If this idea is taken yet a step further, it would seem plausible that the smaller the group, the more specific the actions could be. Within Air Force Systems Command, the next logical division of 27xx and 28xx career fields is by product division. While it may

appear this means a separate policy for each product division, such drastic measures are not necessary. Rather what is suggested is that some product divisions may be better at retaining 27xx and 28xx officers because of the correct identification of the factors which influence their personnel. If those factors can be correctly applied at other product divisions then overall retention of these officers throughout the command will be increased.

The second discovery by Lazar and Maloney was that the factors influencing career intent changed in a group between 1977 and 1980. The authors felt this was "reflective of the environment and human nature" (18:110). Such a broad statement glosses over what may be a significant indication of a shift in people's perceptions and expectations over time. It is absolutely essential the cause or causes of this shift be identified and countered if it is decreasing retention and encouraged if it is helping retention figures.

Reynolds. A study by First Lieutenant Steven Reynolds in 1986 focused on organizational commitment of Air Force lieutenants. In attempting to predict organizational commitment, Reynolds used twenty-five independent variables grouped into three categories as shown:

Personal Characteristic Variables

- Age
- Air Force (commissioned) Tenure
- Education
- Competence
- Sex
- Achievement Need
- Autonomy Need
- Dominance Need
- Instrumentality

Job Characteristic Variables

- Role Clarity
- Role Conflict
- Feedback
- Variety
- Responsibility
- Type of Supervision
- Job Challenge
- Functional Dependence
- Socialization

Work Experience Variables

- Group Attitudes Toward the Organization
- Organizational Reliability
- Personal Importance
- Met Expectations
- Participation in Decision Making
- Job Satisfaction (25:44)

Reynolds developed two regression models from the twenty-five independent variables. The first measured commitment to the unit of assignment and the second, commitment to the Air Force in general (25:46). Reynolds found a dramatic difference in the predictive value of the two models. "The adjusted R squared for the unit commitment was .633 while the same parameter measured .277 for commitment to the Air Force" (25:49). For the unit commitment model, Reynolds

found all but one of the work experience variables (participation in decision making) was significantly related to commitment. This result provided strong support to his original hypothesis "that work experiences are more highly related to unit commitment than either personal or job characteristics" (25:53). In the general Air Force model, only job satisfaction was significant of all the work experience variables.

Reynolds also divided his respondents into three groups; technical, non-technical, and professional, to see if their unit commitment as a group was significantly different than all other lieutenants sampled. Reynolds defined the professional category of jobs as requiring "extensive education and training, and as a rule, are not repetitive in nature" (25:70). He included all 28xx AFSCs, development engineering, in this category. "The non-technical jobs are those which focused more toward the management of people in organizations rather than actually performing specific technical tasks" (25:70). He included all 27xx AFSCs, acquisition program management, in this category.

Reynolds found that the non-technical job category was statistically higher in commitment to the Air Force than the remaining officers. He explained this by way of "Stevens and others' (1979) assertion that because the non-technical

officers frequently do not possess skills with direct application to the civilian job market, they may become more attached to their organizations" (25:73). It is difficult to believe management skills do not apply in the civilian job market. Furthermore, while the acquisition program management career field may not require a "technical degree," it is erroneous to assume it also does not require extensive education and training. If the perception of Lt. Reynolds is shared by senior Air Force officials, then the retention of 27xx officers will continue to be a problem in the future.

In contrast, Reynolds found that those with technical jobs were less committed to the Air Force than all other lieutenants. He explained this by way of Staw and Salancik (1977) "that routine, unchanging jobs (such as those in this category) do not provide individuals with the opportunity to make a personal impact or feel responsible for the outcome of a task" (25:73). The problem here may be that Air Force technical jobs, and particularly engineering jobs, are presently perceived as being routine and unchanging positions. Civilian engineering jobs are perceived as providing more of what the engineers want in a job and therefore, the Air Force has a retention problem. In short, the problem is with the job itself.

Clayton and Mercer. Captain Michael Clayton, USAF, and Major Harold Mercer, USMC, studied the career intent of junior Air Force and Naval officers in the civil engineering career field. With career intent as the dependent variable, they chose fifteen independent variables with seven satisfiers (motivators) and eight dissatisfiers (hygiene factors). They were:

Satisfiers	Dissatisfiers
Achievement	Interpersonal Relations
Advancement	Personal Life
Growth	Policy and Administration
Patriotism	Salary
Recognition for Achievement	Status
Responsibility	Supervision
Work Itself	Working Conditions
	Security

(4:22-25)

Dividing their sample into two groups based upon expressed career intent, the researchers then ranked the variables from most to least influential. Of those in the Air Force indicating a negative career intent, the top seven factors influencing their decision were:

Factor	Frequency
1) Policy and Administration	79.0%
2) Salary	63.0%
3) Personal Life	57.1%
4) Work Itself	47.9%
5) Working Conditions	37.8%
6) Achievement	33.6%
7) Advancement	33.6%

Of those indicating a positive career intent, the top seven factors considered dissatisfiers were:

Factor	Frequency
1) Policy and Administration	67.1%
2) Salary	66.1%
3) Personal Life	52.7%
4) Working Conditions	52.2%
5) Supervision	36.3%
6) Work Itself	32.8%
7) Status	31.3%

(4:37)

Regardless of stated career intent, policy and administration was the variable which dissatisfied officers the most. Clayton and Mercer's definition of this variable was:

> Policy and Administration. That aspect of the Air Force and Navy at all organizational levels involving the adequacy or inadequacy of organization and management: harmful or beneficial aspects of personnel and operational policies, procedures, and practices; presence or lack of consistent and fair policies involving assignment preferences, proper utilization of abilities and placement on job related to interests, background, and training. (4:24)

Two significant variables within this definition are 1) the proper utilization of abilities and 2) placement on a job related to the individual interests, background, and training. The primary focus of this research project is the study of these and other related variables in the attempt to prove individuals will stay with an organization longer when they are doing work in which they have an interest and a background.

Civilian Research

The civilian industry has studied the problems of retention and employee motivation since Maslow first described his hierarchy of needs. Even though the research has focused more on a specific study group or predictive model, the results were similar to those of the military researchers.

Nicholson, Wall, and Lischeron. Three researchers from the University of Sheffield published in 1977 their results of "The Predictability of Absence and Propensity to Leave from Employee's Job Satisfaction and Attitudes Toward Influence in Decision-Making." They felt one of the reasons for the limited success in predicting turnover was that "the majority of previous investigators have typically been content to use simple global measures of job satisfaction" (22:502). They felt that use of

> more detailed measures of satisfaction that are capable of showing whether absence or labor turnover (or in this case the propensity to leave) are differentially related to separate dimensions of satisfaction is worthwhile. (22:502)

Their study sample was taken from the melting, rolling, and machine shops of a northern steel company. Absence and propensity to leave were the dependent variables and job satisfaction and influence the independent variables (22:502-503). Their results were very similar to more recent Air Force studies. They found dissatisfaction with

the work itself was the chief predictor of both absence and propensity to leave. They also discovered that even by combining the scores in different ways using multiple regression techniques, it did not significantly improve the predictive level given by the "work itself" variable (22:504-505). In fact, the researchers concluded from their study that

> the affective response of the employee to the intrinsic aspects of work is more relevant to his leaving behavior, and reduction in the labor turnover of a work force may best be attained by strategies that achieve the optimum match between employee needs, abilities, and expectations, and job demands. (22:511)

Price and Mueller. In 1981 James Price and Charles Mueller of the University of Iowa presented "A Casual Model of Turnover for Nurses." In contrast to Nicholson et al they felt the major weakness of past regression models was "their lack of inclusiveness" (24:543). To correct this perceived inadequacy, they chose eleven independent variables and hypothesized two intervening variables, job satisfaction and intent to stay, as being the major determinants of employee turnover. Their independent variables were:

Opportunity
Routinization
Participation
Instrumental Communication
Integration
Pay
Distributive Justice
Promotional Opportunity
Professionalism

Generalized Training
Kinship Responsibility (24:547)

Price and Mueller sampled 1091 nurses at five hospitals in Iowa and Illinois (24:550). They then ran several regression models with job satisfaction, intent to stay, and turnover as the dependent variables. With job satisfaction as the dependent variable, they found seven of the variables significantly influential; opportunity, routinization, participation, instrumental communication, promotional opportunity, amount of time worked, and age. Seven variables influenced the dependent variable intent to stay with job satisfaction the most significant. The other six variables were opportunity, pay, promotional opportunity, general training, kinship responsibility, and length of service. Only three variables influenced turnover directly, but not surprisingly, intent to stay was the most significant predictor. The other influential variables were opportunity and general training (24:554-555).

Price and Mueller raise almost as many questions in the presentation of their results as they attempted to answer. In general, they recognized "both economic and noneconomic determinants are important in explaining variation in turnover". Economic variables such as pay, opportunity, and general training were influential to a degree as were the noneconomic variables such as intent to stay and job

satisfaction. Pay, however, was only influential in affecting intent to stay directly and was insignificant in influencing job satisfaction (24:559). This tends to agree with the Air Force studies that while pay is important in some cases, job satisfaction seems to be the most influential variable of employees career intentions.

Conclusion

The definitive answers to the retention and motivation problems have not yet been found, but the literature has provided numerous signposts pointing in the right direction. To understand how people are motivated, a brief review of Maslow's Need Hierarchy, Herzberg's Job Enrichment Model, and the Expectancy/Valence Theory were presented. A review of Air Force studies revealed that even when increased pay or bonuses was assumed to be the answer to the retention problem, research results showed the best predictor of career intent dealt with some aspect of the work itself and/or job satisfaction. In short, increased pay led to a reduced probability of a dissatisfying experience (hygiene factor) but was not a good motivator. On the other hand, an increase in job satisfaction by a change in the work itself tended to motivate people more toward remaining in the Air Force. A brief look at two civilian studies revealed similar results. Research of blue collar northern

steel workers and white collar nurses agrees with the Air Force studies results. The work itself and worker job satisfaction are the best predictors of career intent. Changes in the job itself to increase satisfaction should therefore be employed to positively affect retention.

III. Methodology

This chapter describes the methodology employed in the research effort. First, a discussion of the data collection method is presented with an overview of the survey used. Next, the sample population is described in terms of selection criteria and size. Finally, a presentation of the methods used in the analysis of the data is given.

Data Collection Method

Data were collected for this research through the use of a mail survey. This method was chosen because it tends to be more efficient and economical than other collection methods (9:158). The survey was pretested at the Air Force Institute of Technology to preclude misinterpretation of any question by the respondents. In order to increase response rate, the survey was designed to be as short as possible and still obtain the required data.

The survey instrument as shown in Appendix A measured four variables. Expectations of the job were measured using questions 1, 3, 8, and 10. Applicability of education to the job was measured with questions 2, 4, 5, 6, 7, and 9. Questions 11 through 16 measured overall job satisfaction. Questions 11 through 15 were first written using the job satisfaction model developed by Andrews and Whithey (2:33), but was modified to the form shown in Appendix A in order to

receive Air Force Military Personnel Center (MPC) distribution approval. Question 17 was used to measure career intent and questions 18 through 28 collected demographic data from each of the respondents.

Variable Definitions. The four variables studied were defined as follows:

Applicability to Education. The degree to which the individual feels their skills and education are being utilized in their job. A value over 4 indicates the respondent felt their education was applicable to their job while a value of less than 4 signifies low application of education to the job. The reliability coefficient for this variable was computed to be 0.8486.

Expectations. The degree to which the individuals job met any preconceived ideas about what the job entailed before entering the Air Force. A value greater than 4 indicates that the person had a good idea of what the job entailed and those ideas were confirmed upon entering the Air Force. A value less than 4 indicates that certain expectations about the job were not met upon Air Force entry. Reliability for all of the variables was computed using the Statistical Package for the Social Sciences (SPSS). The reliability coefficient for this variable was 0.6736.

Job Satisfaction. The overall level of satisfaction that the individual has for the job. The reliability coefficient for this variable was computed to be 0.7631.

Career Intent. The current intention of the individual toward remaining in the Air Force after completion of their active duty service commitment. The reliability coefficient for this variable was not determined since only one question was used to measure its value.

Sample Population

The sample populations consisted of all 27xx and 28xx officers assigned at ASD and SSD still fulfilling an initial active duty service commitment. As a criteria for the Atlas database search, this translated into all officers at ASD and SSD in the 27xx and 28xx career fields with less than 4 years commissioned service if commissioned through OTS or ROTC and less than 5 years service if commissioned through the Air Force Academy. The Atlas database generated the following population sizes.

Table 1
Population Sizes

	ASD	SSD
27xx officers	264	151
28xx officers	294	467

The required sample sizes were found using the formula published in "A Guide for the Development of the Attitude and Opinion Survey" (1:11-14).

$$n = \frac{N\,(z^2) \times p(1-p)}{(N-1)\,(d^2) + (z^2) \times p(1-p)} \qquad (1)$$

where: n = sample size
N = population size
p = maximum sample size factor (.5)
d = desired tolerance (.05)
z = factor of assurance
(1.96 for 95% confidence level)

Based upon an estimated response rate of 70%, sample sizes were computed and requested from MPC to achieve a confidence interval of 95% ± 5%. MPC direction, however, mandated an interval of 90% ± 10% and recalculated the sample sizes as shown in the authorized column below.

Table 2
Requested vs. Authorized Sample Sizes

	Requested	Authorized
27xx officers at ASD	225	78
28xx officers at ASD	239	79
27xx officers at SSD	156	68
28xx officers at SSD	302	85
Total	922	310

MPC sample sizes were confirmed using equation (1) and a confidence interval of 90% ± 10%.

Mailing labels for the populations were obtained from the Atlas database but did not distinguish between 27xx and

28xx officers at each of the two product divisions. The actual number of surveys sent to the two product divisions was therefore increased to the values shown below in an effort that the required sample sizes would be reached.

Table 3
Number of Surveys Mailed

Aeronautical Systems Division	216
Space Systems Division	219
Total	435

Data Analysis Techniques

Data was analyzed using SPSS. Returned surveys were assigned a number as they were received and then coded into the data base. A description of the data base and the actual survey values are shown in Appendix C.

An overall value was obtained for each of the four variables measured; applicability to education (AE), expectations (EX), job satisfaction (SAT), and career intentions (INTENT). Using the oneway anova and t-test procedures of SPSS, these variables were then compared by product division (ASD or SSD), AFSC (27xx or 28xx), and rank (2Lt, 1Lt, or Capt). The results of the tests are discussed in chapter 4.

Summary

This section has described the method used to collect and analyze the data. It has also briefly described the survey itself and the populations under study. The next chapter will discuss the results of the analysis.

IV. Results

A total of 314 of the 435 surveys mailed were returned for a response rate of over 72%. Only 276 of the surveys were used in the statistical analysis since the other 38 surveys were filled out improperly, returned too late to be included in the data base, or could not be positively matched with either of the two product divisions. The breakout of product division versus AFSC for the surveys included in the data base is shown below.

Table 4
Data Base Sample Sizes

	ASD	SSD
27xx officers	78	31
28xx officers	67	100
Total	145	131

All sample sizes were well in excess of that required for a 90% $\pm$ 10% confidence interval except for the 27xx officer sample from Space Systems Division. A total of 47 surveys were required to achieve the confidence interval but despite the increased number of surveys mailed, only 31 surveys were returned by this group resulting in a confidence interval of only 77% $\pm$ 10% for this group.

First in this chapter is an overview of the demographics of the data base. Secondly, the data analysis results are presented by question and then by variable.

Demographics of Respondents

Responses to the survey were fairly close in number between the two product divisions. A total of 131 surveys were used in the data base from SSD and 145 from ASD. There were 235 males, 40 females, and one unknown responding to the survey. The one unknown, according to his/her note on the survey, refused to answer any question dealing with sex. The breakdown of respondents by rank is:

Table 5
Number of Respondents by Rank

2nd Lieutenants	115
1st Lieutenants	128
Captains	33

The commissioning sources of the officers were:

Table 6
Commissioning Source of Respondents

Source	Number of Officers
USAFA	48
ROTC	159
OTS	67
USNA	1
Unknown	1

The breakdown of the AFSCs of the officers in the data base is:

Table 7
Number of Respondents by AFSC

AFSC	Number of Officers
2721	55
2724	52
2741	2
2821	26
2825	36
2831	11
2835	5
2841	4
2845	11
2851	12
2855	14
2881	2
2885	19
2891	9
2895	18
27xx	109
28xx	167

The average amount of time the typical officer had spent on the job (JOBLGTH) is more than 1 but less than 2 years. The mean value for total active duty time (ADLGTH) is somewhat higher at almost 3 years but can be explained by the high number of prior enlisted officers which responded. A total of 52 officers indicated they had 6 or more years on active duty and many noted on the survey that some of the time had been prior enlisted.

Variable Analysis

The mean values and standard deviations for the first 16 questions for all 276 respondents are shown in Table 8. Variable names beginning with EX measured the expectations the respondents had prior to entering the Air Force. Names beginning with AE measured the degree to which the respondent felt their education was applicable to their job and those beginning with SAT measured the overall job satisfaction of the respondent. Numbers in the variable names represent the question numbers within each variable. For example, survey question 7 has variable name AE5 which represents the fifth survey question measuring the variable applicability to education. Variable names ending in R were reverse scaled prior to the computation of any statistics. Variable names AE, EX, and SAT appearing at the bottom of Table 8 represent the averages of all the corresponding variables in survey questions 1 through 16. Appendix C contains the complete list of all survey questions, a description of the variable name, and a list of all possible responses.

Table 8
Mean and Standard Deviations
of Survey Questions

Question	Variable Name	Mean	Std. Dev.
1	EX1	3.830	1.771
2	AE1	3.435	2.043
3	EX2	4.873	1.966
4	AE2R	4.207	2.001
5	AE3R	4.431	1.884
6	AE4R	3.264	1.758
7	AE5	3.210	1.841
8	EX3R	5.384	1.615
9	AE6	3.775	1.827
10	EX4	3.638	1.662
11	SAT1	4.529	1.725
12	SAT2	5.540	1.330
13	SAT3	3.989	1.594
14	SAT4	4.757	1.594
15	SAT5	4.641	1.544
16	SAT6	4.663	1.743
	AE	3.720	1.432
	EX	4.431	1.250
	SAT	4.687	1.074

Question 17 was designed to measure career intent. With a mean of 4.685 and a standard deviation of 1.948, the typical junior officer in the data base is between "leaning toward the AF as a career" and "undecided."

Applicability to Education. ASD engineers feel their education is much more applicable to their jobs than either the engineers at SSD or any of the acquisition managers. ASD officers as a group also feel their education is more applicable to their jobs than the officers at SSD. Table 9 shows the mean values and standard deviations for each of the various groups. The first four groups show the mean

values when the data is compared by specialty code and product division combined and is identified in the analysis of variance results as the variable "category." The next two groups reflect mean values when compared by product division (SPO) and then mean values when compared by rank. The final group shows the mean values when compared by specialty code. Table 10 shows the analysis of variance results for this variable.

Table 9
Applicability to Education Mean Values and Standard Deviations

Group	Mean	Std Dev
28xx at ASD	4.6741	1.37
28xx at SSD	3.5633	1.36
27xx at ASD	3.2927	1.24
27xx at SSD	3.2634	1.33
All ASD officers	3.9310	1.47
All SSD officers	3.4924	1.35
2nd Lieutenants	3.6855	1.38
1st Lieutenants	3.8320	1.45
Captains	3.4293	1.49
27xx officers	3.3	1.26
28xx officers	4.0	1.46

Table 10
ANOVA Results for Applicability to Education

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	69.197	4	17.299	9.894	.000
CATEGORY	52.747	1	52.747	30.169	.000
SPO	31.050	1	31.050	17.760	.000
RANK	1.757	2	.879	.503	.606
2-Way Interactions	28.178	5	5.636	3.223	.008
CATEGORY SPO	20.805	1	20.805	11.899	.001
CATEGORY RANK	3.738	2	1.869	1.069	.345
SPO RANK	9.236	2	4.618	2.641	.073
3-Way Interactions	2.047	2	1.024	.586	.558
CATEGORY SPO RANK	2.047	2	1.024	.586	.558
Explained	99.422	11	9.038	5.170	.000
Residual	461.569	264	1.748		
Total	560.991	275	2.040		

Expectations. In general, engineers had higher expectations going into their jobs than acquisition managers and ASD officers had higher expectations than SSD officers. No differences were observed either between product divisions or ranks. Table 11 shows the group mean values and standard deviations for each of the groups and Table 12 gives the analysis of variance results for this variable.

Table 11
Expectations Mean Values
and Standard Deviations

Group	Mean	Std Dev
28xx at ASD	4.8507	1.21
28xx at SSD	4.5525	1.18
27xx at ASD	4.2372	1.19
27xx at SSD	3.6210	1.27
All ASD officers	4.5207	1.23
All SSD officers	4.3321	1.26
2nd Lieutenants	4.4630	1.17
1st Lieutenants	4.4434	1.32
Captains	4.2727	1.28
27xx Officers	4.06	1.24
28xx Officers	4.67	1.20

Table 12
ANOVA Results for Expectations

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	36.164	4	9.041	6.166	.000
CATEGORY	32.830	1	32.830	22.389	.000
SPO	10.711	1	10.711	7.305	.007
RANK	1.057	2	.529	.360	.698
2-Way Interactions	5.731	5	1.146	.782	.564
CATEGORY SPO	1.016	1	1.016	.693	.406
CATEGORY RANK	3.228	2	1.614	1.101	.334
SPO RANK	2.160	2	1.080	.736	.480
3-Way Interactions	.809	2	.405	.276	.759
CATEGORY SPO RANK	.809	2	.405	.276	.759
Explained	42.705	11	3.882	2.648	.003
Residual	387.112	264	1.466		
Total	429.817	275	1.563		

Job Satisfaction. ASD engineers are much more satisfied with their jobs than the acquisition managers at ASD. This relationship was not observed at SSD and no significant differences between product divisions or ranks were observed. Table 13 shows the group mean values and standard deviations for each of the groups and Table 14 gives the analysis of variance results for job satisfaction.

Table 13
Job Satisfaction Mean Values
and Standard Deviations

Group	Mean	Std Dev
28xx at ASD	4.9925	1.05
28xx at SSD	4.7750	0.96
27xx at ASD	4.4573	1.08
27xx at SSD	4.3602	1.27
All ASD officers	4.7046	1.10
All SSD officers	4.6768	1.05
2nd Lieutenants	4.7261	1.10
1st Lieutenants	4.7109	1.05
Captains	4.4949	1.09
27xx Officers	4.43	1.13
28xx Officers	4.86	1.00

Table 14
ANOVA Results for Job Satisfaction

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	15.531	4	3.883	3.459	.009
CATEGORY	14.038	1	14.038	12.507	.000
SPO	1.839	1	1.839	1.639	.202
RANK	1.288	2	.644	.574	.564
2-Way Interactions	2.093	5	.419	.373	.867
CATEGORY SPO	.203	1	.203	.181	.671
CATEGORY RANK	.733	2	.367	.327	.722
SPO RANK	1.080	2	.540	.481	.619
3-Way Interactions	2.756	2	1.378	1.228	.295
CATEGORY SPO RANK	2.756	2	1.378	1.228	.295
Explained	20.380	11	1.853	1.651	.085
Residual	296.312	264	1.122		
Total	316.692	275	1.152		

Career Intent. No differences in the career intentions of junior officers were observed using any of the comparison methods. Table 15 shows the group mean values and standard deviations for each of the groups and Table 16 gives the ANOVA results for career intent. The higher mean values in Table 16 indicate a more positive intention toward remaining in the Air Force than the lower values with 4.00 representing neutral or undecided in career intention.

Table 15
Career Intent Mean Values
and Standard Deviations

Group	Mean	Std Dev
28xx at ASD	4.3831	1.80
28xx at SSD	4.5600	2.02
27xx at ASD	4.1023	1.93
27xx at SSD	3.7107	1.99
All ASD officers	4.2859	1.87
All SSD officers	4.3588	2.04
2nd Lieutenants	4.4606	1.80
1st Lieutenants	4.3359	1.98
Captains	5.6070	2.26
27xx Officers	4.05	1.95
28xx Officers	4.48	1.93

Table 16
ANOVA Results for Career Intent

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	27.509	4	6.877	1.839	.122
CATEGORY	11.483	1	11.483	3.071	.081
SPO	.107	1	.107	.028	.866
RANK	15.149	2	7.575	2.026	.134
2-Way Interactions	23.512	5	4.702	1.258	.283
CATEGORY SPO	3.060	1	3.060	.818	.366
CATEGORY RANK	15.512	2	7.756	2.074	.128
SPO RANK	1.326	2	.663	.177	.838
3-Way Interactions	5.464	2	2.732	.731	.483
CATEGORY SPO RANK	5.464	2	2.732	.731	.483
Explained	56.484	11	5.135	1.373	.185
Residual	987.092	264	3.739		
Total	1043.576	275	3.795		

V. Discussion and Recommendations

Response to this survey was almost overwhelming. The high response rate of almost 72% indicates the presence of some very strong feelings from the officers sampled. These feelings were further evidenced through the great number of comments received. In this chapter the implications of the numerical results are presented first. Secondly, an overview and brief discussion of the comments is given followed by recommendations for correcting or negating the problems perceived as most important by junior officers. Finally, several areas of further study are suggested for future research efforts.

Discussion of Differences in Variable Means

Applicability to Education. In partial support of the original hypothesis, the officers at ASD and particularly the engineers, apparently feel their education is significantly more applicable to their job than the officers at SSD. Two reasons for this difference are theorized: 1) the officers at ASD, as originally hypothesized, are being used more as engineers than as managers perhaps through use of the matrix organization, and 2) the jobs at ASD may be better suited for engineering disciplines than those at SSD. The two reasons are actually closely connected. During the original survey mailing it was noted that a significant

number of surveys addressed to ASD officers were in reality being sent to laboratories within the ASD organization. The same phenomena was not observed with the SSD addressees. Since the survey was sent out randomly and returned anonymously, it is impossible to know how many surveys were sent to laboratories and how many to program offices at the two product divisions. As will be noted later, one of the common complaints from engineers is the lack of any true engineering jobs. The closest thing in the Air Force to actual "hands on" engineering is in the laboratories. If the surveys sent to ASD comprised a higher percentage of addressees working in laboratories than those sent to SSD, then the statistical difference between the two product divisions may not represent better utilization of engineering resources, but simply better availability of "hands on" engineering jobs. It is believed that the real reason is probably a combination of the two. The matrix organization at ASD attempts to utilize engineers and managers in positions where they are needed and in which they have a background. To determine if officers really feel that ASD jobs are more applicable to their education than the SSD jobs, further testing should be done excluding all laboratory assignments from the populations.

Expectations. The differences in the expectations of the officers between career fields and between product

divisions was initially surprising in light of the fact all officers are commissioned through common sources. In subsequent analysis, however, the differences begin to make sense in the presence of other considerations. First, the Air Force grapevine plays a significant role in forming officer expectations. The rumors associated with the utilization policies of ASD and SSD undoubtedly influenced officer expectations prior to their actual commissioning. It is human nature to be anxious and inquisitive about new places and once a future officer knew where they were going to be stationed, it is surmised that they tap into the grapevine to find out what the place will be like. Secondly, the availability of "hands on" engineering jobs at ASD again becomes important. The presence of more laboratory jobs at ASD for 28xx officers than at SSD would explain the higher mean value of the ASD 28xx officers. Further research is again necessary to remove any effects that these laboratory jobs may be imparting.

Job Satisfaction. The difference within ASD between engineers and managers may be explained by the combination of two effects. First, the presence again of the laboratory jobs may be contributing to a higher job satisfaction mean since the engineers appear to be happiest in the labs. Secondly, a large number of 27xx officers in both product divisions hold engineering undergraduate degrees. As

trained engineers, these officers may be less satisfied as managers than their peers with identical degrees working as engineers.

Career Intent. The original hypothesis stated that the officers assigned to ASD would be more positive in their job attitudes and career intentions because they are being utilized in a job which more closely matches their education, background, and skills. This hypothesis was rejected here since statistically the career intentions between specialty codes, product divisions, or ranks was not significantly different. However, a relatively large percentage answered the career intent question negatively. Twenty-seven respondents are leaning toward separating (answer f), thirty-one said they will **probably** separate (answer g), and another thirty-one said they **definitely** will separate from the Air Force. This equates to about 32.2% of all junior 27xx and 28xx officers thinking seriously about leaving the Air Force. This does not imply that all of the remaining officers will necessarily stay in the Air Force nor is it meant to suggest that all eighty-nine officers who responded negatively in career intent will leave. The disturbing element here is the fact that almost one third of the junior officers surveyed are at least leaning toward getting out of the Air Force. Something within the Air Force has forced these officers to lean toward separation at

such an early stage in their careers and when these factors are identified, the Air Force can then take positive steps to increase retention rates. The answer may lie in the comments received from the survey respondents.

Discussion of Comments

Of the 314 surveys returned, 156 contained some sort of a comment. The comments themselves are contained in Appendix B and when known, the AFSC and product division of the respondent is also given. The comments ranged anywhere in length from one line about how they had no time to make comments to multiple pages of text. Two respondents even attached articles from the Air Force Times and Los Angeles Times which they felt hoped to clarify their point. Comments were both positive and negative and fell into several categories. A total of 68 positive comments were observed in at least one of four categories while the 127 negative comments fell into one or more of five subject areas. A brief overview of each of these areas is presented below.

Positive Comment Areas

Air Force (Overall). This area covers a general feeling of satisfaction with the Air Force way of life. There is usually nothing specific identified by the respondent as the one contributing factor of this

satisfaction but instead a broad comment that they simply like the Air Force.

Job (Overall). This category is slightly more specific than the previous one in that the respondent identified his/her job as the factor which is most satisfying to them.

Responsibility. This category is even more specific than the first two in that the respondent was pleased with the higher level of responsibility they enjoyed in comparison with their civilian counterparts.

Pay and Benefits. A few of the respondents were pleased with the level of pay and benefits they currently receive from the Air Force. In most cases the comments in this area are tied to another statement in which the respondent explains that the problem is not with the level of pay and benefits but lies in some other area.

Negative Comments

Bureaucracy. This category includes the all too familiar complaints of micro-management and too much government bureaucracy. The frustration level of junior officers in the accomplishment of their assigned tasks is readily apparent in these comments.

Secretarial Duties. The complaints by junior officers in this category deal with the amount of what they feel are menial duties. The largest complaint here was that

the Air Force was wasting their talents and under utilizing their education and skills on jobs like office postman, coffee maker, typist, and copy maker. Many respondents reported a positive change in job duties after only a few months but they are still very bitter about their initial task assignments.

Engineering Jobs. The engineers major complaint was the lack of any real engineering work for them to do. They feel that as degreed engineers, their talents are being wasted in the roles of manager and contractor monitor. All of these comments came from the engineers in the program offices and not from those working in the labs.

Education and Training. This category encompasses the comments by junior officers whose frustration stems from inadequate or non-existent training and education programs for acquisition managers and engineers. They feel the current system of on the job training is extremely inadequate. General Randolph's soon to be implemented entry level course for new acquisition officers should alleviate much of the problem in this area.

Pay and Benefits. The perceived pay inequity between the military and civilian sectors is still a major complaint of many officers. The vast majority of the negative comments about pay and benefits are from the

engineers with over half of them from the engineers at SSD.

Recommendations

While the analysis of the four variables in the survey has provided some interesting statistical information, the content analysis of the respondent comments is extremely useful in identifying the specific problems which junior officers perceive as being most important. The junior officers of ASD and SSD appear to be extremely frustrated with their jobs. The officers with experience and training feel constrained by their rank and bureaucracy while those with limited or no training are frustrated by a lack of acquisition system understanding. The Air Force needs to better prepare its officers in the commissioning programs for the realities of the jobs in Systems Command. The engineers need to understand that the Air Force simply does not have a great number of "hands on" laboratory engineering jobs, but that degreed engineers are still needed in the role of engineering manager to assure the contractor is building a technically sound system. Secondly, all new officers need to learn that they cannot start at the top of the organization just because the Air Force has paid for their undergraduate degrees.

The Air Force also needs to prepare its officers better for the demands of the jobs within the acquisition world.

The new training program for new acquisition officers is a step in the right direction. Within it though, the Air Force needs to teach not only the factual material of proposals, negotiations, and contractor interfaces, but also the reality of the acquisition world; 2nd Lieutenants have a lot of responsibility but limited authority in making big decisions.

The potential areas for further study are enormous. As stated earlier, the response from the 27xx career field at SSD was less than that required for a 90% $\pm$ 10% confidence interval. Further research could be done to verify these research results by categorizing selected officers in the initial mailing as either 27xx or 28xx rather than hope enough responses are returned from each group.

Further research with this survey could also be done in which all laboratory assignments are excluded from the populations. A research effort here would clearly tell whether the engineers and managers at ASD are being utilized any better than those at SSD.

Finally an enormous amount of research could be done based upon the comments from the survey respondents. A survey of junior officers in any one of the subject areas could yield significant information toward developing future

programs or policies to correct the problems perceived by junior officers.

Conclusion

This research effort has attempted to show that ASD is better at utilizing its 27xx and 28xx resources. Like many studies, however, it has generated almost as many questions as it has attempted to answer. It has nonetheless provided some useful information to the senior officers within Air Force Systems Command. The results of this study were briefed to General Randolph, AFSC/CC, on 20 September 1989 and a copy of the presentation is contained in Appendix D. There are really no easy answers when it comes to motivating people but the Air Force will continue to need the services of bright, young engineers and managers in the future. If the Air Force is to continue to recruit and retain the high caliber of people it has in the past, then it needs to listen closely to the message of its junior officers.

Appendix A: Engineer and Systems Manager Attitude Survey

For the following questions, indicate the response which comes closest to your feelings using the scale shown below. Please answer all of the questions.

Strongly Disagree	Dis-Agree	Slightly Disagree	Neither Agree nor disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

_____ 1. This job is about what I expected it would be when I entered the Air Force.

_____ 2. My undergraduate degree skills are essential in performing my job.

_____ 3. If I could begin my Air Force career over, I would enter the same career field again.

_____ 4. My college education has little application to my Air Force job.

_____ 5. My education level is too high for the work that my job requires.

_____ 6. I could do more for the Air Force if only I could apply more of my education to my job.

_____ 7. I am being used at my full potential.

_____ 8. If I had known what this job really entailed, I would never have entered the Air Force.

_____ 9. Many of my job duties allow me to utilize skills I learned in college.

_____ 10. I knew when I entered the Air Force the amount of "hands on" experience I would receive.

Use the scale shown below in answering the next 6 questions. Read each item carefully and choose the statement which best represents your opinion.

Dissatisfied			Neither		Satisfied	
Very Dissatisfied	Somewhat Dissatisfied		Satisfied nor Dissatisfied		Somewhat Satisfied	Very Satisfied
1	2	3	4	5	6	7

_____ 11. Overall, how satisfied are you with your job?

_____ 12. Overall, how satisfied are you with the quality of the persons in your work group?

_____ 13. How satisfied are you with the actual day-to-day activities that make up your job?

_____ 14. How satisfied are you with the physical working conditions?

_____ 15. How satisfied are you with the resources you have available to do your job?

_____ 16. How do you feel about serving in your present career field?

17. Indicate the response which most closely matches your current intentions toward remaining in the Air Force after completion of your service commitment.

a. I do not have an active duty service commitment.
b. I will definitely remain in the Air Force.
c. I will probably remain in the Air Force.
d. I am leaning toward remaining in the Air Force.
e. I am undecided as to whether I will remain in or separate from the Air Force.
f. I am leaning toward separating from the Air Force.
g. I will probably separate from the Air Force.
h. I will definitely separate from the Air Force.

For the following questions, circle or write the response which most closely represents your situation. Try to be as specific as possible for all write in answers.

18. What is your DUTY AFSC, i.e., the authorized manning position to which you are currently assigned?

_____

19. Source of commission
    a. USAFA
    b. ROTC
    c. OTS

20. Indicate your rank

    a. 2nd Lieutenant
    b. 1st Lieutenant
    c. Captain
    d. Major
    e. Lieutenant Colonel

21. Indicate your sex

    a. Male
    b. Female

22. What is your current job title?

_____

23. What is the highest level of education you have completed?

    a. Less than a Bachelor's Degree
    b. Bachelor's Degree
    c. Bachelor's Degree Plus, No Masters
    d. Masters Degree
    e. Master's Degree Plus, No Doctorate Degree
    f. Two or more Masters Degrees
    g. Doctorate Degree

24. In what area of specialization did you obtain your Bachelor's Degree? If you have more than one Bachelor's Degree, indicate the area in which you obtained your first degree.

_____

25. If you have more than one Bachelor's Degree or have completed an advanced degree, in what area of specialization did you obtain the degree(s)?

_____

_____

_____

26. Indicate the calendar year in which you obtained your highest academic degree.

a. 1989	f. 1984	k. 1979
b. 1988	g. 1983	l. 1978
c. 1987	h. 1982	m. 1977
d. 1986	i. 1981	n. 1976
e. 1985	j. 1980	o. 1975 or before

27. How long have you been in your current job?

a. Three or less months
b. More than 3 months but less than 1 year
c. 1 year but less than 2 years
d. 2 years but less than 3 years
e. 3 years but less than 4 years
f. 4 years but less than 5 years
g. 5 years but less than 6 years
h. 6 years and more

28. How long have you been on active duty in the Air Force?

a. Three or less months
b. More than 3 months but less than 1 year
c. 1 year but less than 2 years
d. 2 years but less than 3 years
e. 3 years but less than 4 years
f. 4 years but less than 5 years
g. 5 years but less than 6 years
h. 6 years and more

Comments

Provide any additional comments concerning your attitudes toward the Air Force and/or your career field.

Appendix B: Survey Respondent Comments

The following comments were received from the survey respondents at Aeronautical Systems Division and Space Systems Division. The responses have been changed only to correct grammatical or spelling errors. The words are those of the respondent except for those in brackets which have been added as clarification or to make the comment into a complete sentence. Following these comments are additional statements made by respondents whose program office or AFSC was not identified.

ASD 27xx Officer Comments

1. It seems there is a lot of confusion in the Air Force about career progression especially among the higher ranking officers who should be advising the junior officers. I do like what I'm doing now, but the future?

2. It may be of some interest to you that the career field I am in now is not what I signed up for when I entered the Air Force. I got a medical elimination from UPT. I doubt I would have been very happy in any career field the AF put me in, I only wanted to learn to fly.

3. One of the greatest disappointments as an engineer entering the Air Force is the lack of hands-on experience. Most work consists of government managers watching (i.e. "managing") contractors do the real work. The education our

engineers receive is severely underutilized. I have worked as a program manager on 5 different programs ranging in value from $150 thousand to $0.5 billion. On each of these programs I felt that I had the requisite education needed to perform my duties upon graduation from high school. This causes an engineer acting as a 27xx to ask himself, "what is the value of the 4-5 years I spent busting my ass at an engineering school?" Answer: Zero We are entering another period where engineers are departing the Air Force "en mass." The answer is not more money--our salaries are more than adequate. We need meaningful work with duties that are commensurate with our education.

4. I am planning on accepting one more assignment but will probably separate after that assignment. I have enjoyed my job but would have liked to have gotten a PCA after about two years. Although my undergraduate degree does not relate to the 27xx career field, many of the skills learned in college (time management, organizational, people interaction) are applied daily.

5. Acquisition manager career field should be explained to ROTC cadets. My engineering degree has been worthless on this job. A business management degree would dovetail perfectly with the 27xx career field. So far, hands on engineering experience has been "zero." Personally, I don't mind being in the Air Force, pay and benefits are adequate.

The prospect of obtaining a 2825 job with possible hands on engineering experience has motivated me to stay in. I am completely dissatisfied with the acquisition management career field. The work is dull and boring, and consists mainly of acting as a human cattle prod to bludgeon questionable projects through a bloated over regulated bureaucracy. I did not request to be in the 27xx career field.

6. They should be using enlisted personnel to work schedules! It requires no prior education in a specialized area. As a 27xx I had expected a program management position. Instead I was assigned to AC as a scheduler. I am told I will be doing this for the next few years, so I will be a capcain before I ever see a program management position. By then I will be expected to know what I'm doing as a program manager but of course I won't have the experience. This situation is very annoying. I'm working on a master's in physics and I can tell you I won't be using it in the Air Force!

7. I completed your survey yet I am very cynical when it comes to knowing what use the results of this survey will have. (Other than completing a master's requirement). Publish your results in the SkyWrighter or the AF Times or somewhere. The questions were too general in nature. For a survey of 27/28 officers, you should have been asking more

specifics: i.e., 27's can be 1) program managers, 2) configuration managers, 3) test managers, etc. Where are the questions like "what do you enjoy most or least?"

8. JMO's having more responsibility than their civilian counterparts is not necessarily true. Here I can initiate a decision but find that even the most trivial (i.e. where the visiting foreign VIPs should park) must be coordinated by about 10 people, all of whom are field grade officers. ASD is plagued by micromanagers. JMO's viewpoints (even the strongest personalities) are often lost in the noise. It would seem that I would have more "real responsibility" as a big fish in a smaller pond. Being a small fish in the Air Force's big sea is frustrating. My OERs say I'm in charge of nearly 200 million dollar program. The truth is I cannot commit one thin dime of that money nor give the contractor formal direction without asking for coordination of 50 people! (Most of the time it takes months!) The Air Force is a safe secure career. It helps the slow and caters to the average. Promotions are too far and few for the fast burners. In the civilian world you are promoted based on the company profit you can bring in. In the USAF it is based on "time in grade." I'm ready to sink or swim on my own. You only live once!

9. Why did the [Air Force] spend $20,000 (+) and make me a degreed engineer, to put me to work as a secretary?

10. I believe it is a waste of academic knowledge. I became an engineer because the USAF needed them and now I am a system safety toad. The AF system that claims to be in constant need of engineers misutilizes the ones they presently have. I know of too many CGOs that will be getting out after 4 years because they were placed in program/project manager positions as brand new 2Lts after 4 years of hard work to get the engineering degree. From just my short amount of experience, I can understand why the engineering retention rate is at a low point.

11. Question 7:

I am lucky in that my supervisor allows me to try new things. I find myself continually pushing to do more. But, I believe that no one works to their full potential. We all constantly learn. I am happy with what I'm doing in my job now although occasionally I feel overwhelmed and overworked. It is a matter of adjustment to one's circumstances. I feel that I continually push myself to work to my full potential but I don't know if I shall ever reach it. If I did wouldn't it be boring!?

12. Quit wasting my time with kiss-the-bosses ass additional duties and let me do my job.

13. I have not been "turned off" to the Air Force, just the 27xx career field. I truly recognize the benefits of serving in the Air Force. If I can change my career field

to one that is more in line with my USAFA degree and maybe a future masters degree (USAFA instructor, attache, embassy work, foreign policy, etc.) I will definitely stay in the Air Force. If not, then I will consider leaving to pursue that kind of work in the civilian world.

14. In my admittedly short time on active duty, I have seen quite a few highly talented and qualified people leave the military. I believe this was due mainly to the following two reasons:

1) Too much bureaucracy which makes even the easiest tasks/decisions difficult and time consuming.

2) Bosses who didn't take care of their best persons. (Too much politics within the organization)

For further information--read enclosed article. [Respondent enclosed copy of an article from the 27 Feb 1989 Air Force Times entitled "Lehman confirms our worst fears."]

I hope TQM (Total Quality Management) can correct some of these problems. If it is handled improperly, I can see a mass exodus of <u>both</u> military and civilians.

15. Largest complaint areas for 27xx:

1) Promotability (vs rated)

2) AF attitude (doesn't care) toward ensuring cadre of qualified acquisition officers is maintained.

3) Ability of pilots to take rated supplement jobs in key positions over more qualified 27xx's.

16. My first assignment was in configuration. If I had a choice, I would have left the Air Force. My current job is great!

17. At the moment, I am at an interim position learning about the system program office. When I am put into an actual program managers job, I see my satisfaction greatly increasing. [I am currently] doing a lot of clerk work that is below my educational background. (That is less challenging mentally than I would like.)

18. My career field is exciting and I am happy about the positions that are available, eventually. The position I am in now is glorified secretarial work. A GS-5 could perform this job effectively. I also do not understand why 27's are collocated from AC. What would a program manager do in AC? I would like some responsibility, a chance to manage a program and use my technical background.

19. Lt's are often underutilized in the 27 career field. Many times we are given secretarial tasks in the guise of obtaining "good experience." Not all offices do this, but it is a common complaint.

20. The Air Force does not utilize potential and knowledge held by individuals. New people to any organization have a certain insight into correcting problems for they have not been conditioned as to the "why we <u>can't</u> do this" attitude of every organization. Therefore, new individuals should

not be given the crappiest jobs available because they are "new." The Air Force needs to take a look at this policy and find ways to utilize the newer bodies to every organization. This includes new 2Lts, new captains and even new Colonels to an organization. As a new 2Lt, I expected the bottom of the barrel jobs, but this was ridiculous. Until 4 months ago, I was a postman, delivering documents throughout my SPO. I now have a better job, but those 18 months as a mailman really stink when compared to what some of my classmates are doing: flying F-15s, navigating KC-10s, commanding SPs, etc.

21. I'm sure the Air Force could replace all the "27" engineers with business majors and maintain the level of excellence in acquisition (if not increase it due to the fact that business majors actually have an initial clue to civilian corporations and how they operate. . .which could lead to an understanding of their motives) that it currently enjoys. Now I know what happens to all the caucasian engineering students that should be replacing the non-english speaking in grad schools. . . the Air Force recruited them! I studied way too hard to be doing acquisition management. But I should be glad I'm not a scope dope.

22. Although I am thankful that the Air Force sent me to school to obtain an engineering degree, I feel they wasted

their money. In my SPO, as a 2721 you don't need an engineering background and as an Aerospace Engineer I am in an electrical engineering SPO, so my background doesn't help the Air Force much. My working conditions aren't very good. I'm busy working with 2100's with PT and Chart while the rest of the world uses Harvard Graphics and Wordperfect. In general, I feel I am getting the best service from the AF, but I don't feel the AF is getting everything they can out of me. That should bother the AF because they are wasting the money they've invested in me.

23. "Working conditions are awful. It is often 10 warmer in the office than it is outside. Training for project management is inadequate. No engineering what-so-ever is required in my work. The work I do and that other project managers do (save the pilots) could be done by a high school graduate. In fact, we now have a project manager, a GS-5, who has no degree, doing the same work we do. The work is neither intellectually challenging nor rewarding. We are referred to as managers but we manage no resources. We simply gather information, write reports, and coordinate opinions around the SPO.

24. I am very pleased with my career field and job responsibilities. I do however feel that I could do a better job if my duties correlated more to my degree and past academic experiences. I feel also that I have more

responsibilities than my peers merely because I was assigned to a relatively small SPO. I anticipate making the AF a career (tentatively as a 27xx).

25. I work under deplorable conditions in a condemned building (32).

26. As a program manager, I deal frequently with my counterpart program managers in industry. The biggest frustration for me is that my counterpart has both responsibility and authority; he can make decisions, send out correspondence, etc. I, on the other hand, have a lot of responsibility, but with no authority. Every letter I try to send to the contractor (in answer to one of his many letters he is constantly sending me) has to go through 5 days of coordinations, revisions, etc. I can't keep up with my counterpart. . .it's very frustrating! This job has too much bureaucracy. It's also frustrating to get tagged for meaningless additional duties (i.e. tours, organizing an outing, etc.) when you have important work to be accomplished and a deadline to meet!

27. May get [out] because

-challenge and opportunities for field grade officers seem very limited in 27xx career.

-close to impossible to make full Colonel without being rated.

-acquisition in AF is very poorly conducted

28. Generally speaking, I have good things to say about my experiences in the Air Force, and ASD in particular. If you wonder about #17, the "separate from service" response, take these two concerns into consideration:

-I'm not convinced that it is important enough to promotions that you are technically competent. I see a vast number of pilots in the management slots here. I don't know if I'm complaining, but as a non-pilot, I worry about what might happen in future promotion boards.

-The PCS system, with the constant moving, won't mesh well with a non-military, professional MBA degree spouse.

29. The 27xx, Program Management Career field offers responsibility and challenge to officers when they are placed in actual program management jobs. My job is as a facilitator to the experts in F-16 Aircraft beddown to gaining units. It is interesting and exciting, but not program management. I'm explaining this only to clarify why my attitude in questions 1-16 is as it is. In regard to your questions about using my education, I feel my undergraduate schooling was well rounded and useful. I even had a class in systems acquisition similar to Systems 100. However the acquisition management career field as a whole could use substantially more training to increase performance in this dynamic, highly regulated yet flexible, challenging acquisition job field.

30. 1) Working conditions i.e. furniture, facilities, computer resource allocation could use some improvement.

2) I've moved physically 5 times in the last 2 1/2 years. It is somewhat difficult to pick up and move every 6 months to 1 year without a degradation in work performance for 6-8 weeks.

3) Job responsibility level and security are outstanding for we in the Air Force. Salaries continue to lag behind in the 5-10 year period. If I leave after my service commitment, it will most likely be for a lack of competitive salary. With a engineering undergraduate and engineering management graduate degrees, my potential outside salary is at least 50% higher with greater potential for raises in position and salary. The security vs. salary issue will be a difficult one to wrestle with.

31. I am very satisfied with my current job as a flight test manager. I feel that I am lucky to have the position that I do as a 2Lt. Others who entered active duty in the same time period that I did weren't so lucky, in my opinion. I use my college degree everyday in my job which appeals to me. I don't use it to solve problems, (i.e. computer programming, quantitative analyses) but I use the body of knowledge built up during 4 years of college. For example, certain aircraft maneuvers, terminology, and problems would be alien to me had I not had an undergraduate degree in

aerospace engineering. I am currently pursuing an MBA with a concentration in systems management in order to give me experience (quantitative) in management. I thing that this degree plus my OJT would enable me to become a better program manager.

32. I like the amount of responsibility I have, I feel it is much greater than what I'd have on the outside. However, I feel very constrained by my rank. I believe that I know my program better than anybody else, but when it comes time for a big decision, my choice is often overturned (no authority). I feel progression in my field is more related to time than performance.

33. I am not in my career field. I believe I would enjoy my job if my job was program manager or I held a position directly related to my career field. I feel I am losing ground in my career field when compared with my peers. Should I be assigned a position in my career field and was satisfied with the job and those I worked with I would be more on the definite side of staying in the AF, but if I am held in this position much longer I am more likely to jump ship. There are too many politics in changing positions.

[This respondent identified herself as a 2721 working as a program analyst in the plans and integration shop under the comptroller.]

34. It is just about as difficult to get informal training as it is to get formal training. The learning curve is made much more steep when there is no foundation to start from. Everyone in my office is confused about how to get things done, and they have all been here for at least a year. After trying to garner piecemeal information for the past 5 months, I still do not fully understand all the processes which go on around here--and I still don't have a Systems 100 slot. It is very frustrating fighting for information on how to do your job. No one makes any effort to help, they just pile the work up and you have to seek them out for help although they know that you have never done such work before. I am sure things are good when you know what you're doing, but now the Air Force seems bad--real bad.

35. I believe that the 27xx is the best career field in the Air Force after pilots. It offers some of the best opportunities for job placement after separating from the Air Force. Also, it carries with it a high degree of responsibility which isn't available in most other career fields. Although I ind ed I was slightly dissatisfied with the resources I have available to do my job, my only complaint is with the computer resources available at ASD. We need to start working towards common hardware and software in ASD. Also, in getting more technologically current computer resources.

36. AFSC and other MAJCOMs using acquisition types should set up some kind of entry level acquisition training immediately upon coming on active duty, whether it be just Systems 100 and 200 (AFIT) or some kind of short "tech school." OJT is great but "learning by doing" fresh off the street is time consuming and a hassle for some organizations. The Air Force needs to straighten out the mess with 27xxs and 28xxs. There's too many 28 jobs going to 27s, and vice versa, or people being mismatched between the two, and the Air Force's attitudes that: (a) 28 and 27 are "about the same" and (b) "you'll never get promoted past major in Systems Command as a 28" don't help the situation any. I came on duty as a 2721, but working in an engineering office with a job title of "Aerospace Design Engineer." I was happy about the job title and the actual job, but I didn't like being branded as a 27xx because people automatically assumed I was an acquisition type--which I wasn't! Turns out that office had no 28xx slots without getting matrixed personnel from EN, but they did have a 27 slot, and wanted their own engineer "warm body" (not a collocate). Any time I talked to personnel (DP) about moving on to another engineering job or talked about formal schools or special training (i.e., AFIT/engineering, test pilot school, scientific exchange), I constantly got a response like: "why do you want to do that, (or "you can't

do that") you're not an engineer, you're a 27." But I was an engineer! I feel I was hurt by a mismatched AFSC and job title. Elsewhere in Systems Command I know of 28xx guys who are doing program management (and enjoy it) and want to do more of it, but they can't seem to move into SPO type jobs because they're branded as "engineers" (lab bench weenies) and they aren't "acquisition certified." They find themselves behind the power curve as Majors without a systems acquisition class or a DSMC course, and feel they can't get promoted any higher as "engineers," so they punch out. But I'm sure they could've found a 27 somewhere who wanted to be a 28 that they would've traded places with given the chance. Don't get me wrong, I love the Air Force. I have now moved into a "real" 27xx job as a flight test project officer and still get to use my engineering experience to some extent. I enjoy the responsibility and challenge. BUT, the Air Force has got to start listening to its 27 and 28 officers or else they'll start losing them! The Air Force keeps talking about its whining pilots complaining about their skills and training not being utilized, but how do you think some young kid feels who just bust butt for 4, 5 (or sometimes more) years getting an engineering degree, then gets pushed into "program control" or "configuration management?" Why can't we establish long

term 28xx (and 27xx) career tracks that are clear and viable?

37. The AF does not use its resources effectively. The AF does not provide incentives for the actual people who perform above and beyond the call of duty. Responsibilities should be provided commensurate with performance, demonstrated ability and professionalism. Discrimination doesn't only involve or entail what someone is doing against you but what someone is not doing for you which will put you behind your peers.

38. My biggest disappointment in serving in the Air Force, is that the higher ranking more experienced officers do not encourage the development of objective, critical thinking in the junior officers. The lack of training and education for 2721's frustrates the motivated individuals while propagating the "run of the mill" attitude. Mediocrity is accepted. My biggest and most enjoyable surprise has been the amount and variety of traveling that I've experienced.

39. The main reason I plan to separate is the short sightedness of the bureaucracy. Example: we can't afford to man our office so we pay contractors exorbitant fees to do our work for us. There are <u>many</u> problems with the way we do business.

ASD 28xx Officer Comments

1. From the very beginning, engineers in my year group have felt unwanted by the rest of the AF. As we have continued in our careers, we get pilot this, pilot that thrown in our face. General Hickey said if Congress would allow the pilot's bonus, he'd find the money somewhere--from my pay raise, my MWR funds, my program that got cut. They (senior officers) say it must not be very bad for engineers because they're still here--they're not voting with their feet. Here's one person who's more than willing to vote with my feet as soon as my commitment is up.

Also, it's hard to trust the Air Force. They don't keep their promises. My senior year, they stopped paying for all textbooks. They change the rules for retirement (average last 36 months). They're talking about user fees for the Medical Center.

There's a lack of leadership for engineers. There's no career path mapped out for 28xxs except for the acquisition career development plan. All the leaders are pilots not engineers. There's just no real guidance.

Also, ASD/CC and the Deputy for Engineering have both stated publicly that there is no difference between the military and civilian engineers whatsoever. If that's true--why do I wear a blue suit, work additional duties, and make less money?

2. I am one of a few officers who was fortunate to work in a laboratory environment. After talking to other officers in my career field I realize I am in the minority. I have discussed with AFMPC the possibility of continuing my career with another lab assignment. I am told this will not happen. I have trained for four years to do what I am doing and now have four years experience. I believe the Air Force is not trying to get the most for their dollar by putting people like myself in a System Program Office. My next job assignment will greatly influence my career choice. The Air Force has been good to me and I would like to remain an Air Force officer, but what I do for 40-50 hours a week will determine what I do.

3. Operational experience is required for the 27/28's trying to manage programs right out of college.

4. Microelectronics is a specialized, rapidly advancing field. I graduated from the only undergraduate program in microelectronics in the country. I feel the Air Force was unwise in not placing me in this field. My current job is somewhat related to the things I've studied. My initial frustration at not being placed where I thought I should have, has been mollified by having been told that I can transfer into that field within two years. My current job is technically challenging and the people are fantastic. My

only complaint is not being put where I wanted, but I am an AF officer, the job will be done to the best of my ability.

5. Please put this survey to good use.

6. I am very fortunate to have the job I do. I actually sought it out and got a "by-name-request." I am not optimistic that there are many jobs as good as this available to me in the AF. [This respondent identified himself as a 2885, research engineer]

7. The jobs in the laboratories are great, but the pace is slow. There is no sense of urgency in the work done here--especially the civilians. This makes work frustrating, because if you're part of a team, you can't go out front. Labs should be high risk research: but no one here wants to take risk because they are afraid to fail and they don't want to take responsibility.

8. The positive ratings indicated in this survey reflect upon the job I am currently in. Right not I'm in the labs and enjoying the assignment. However, I have not forgotten the conditions of my prior assignment and I know that a similar dismal assignment is in the future. The SPOs and test agencies are poor assignments and here's why:

-Short sighted SPOs emphasize cost and schedules over technical merit. Engineers are treated as children, people to see but not to hear. I know that engineers are just numbers on a manning chart.

-Bureaucracy: If the President of the United States has an idea he wished to implement--the management system works great, however, working an idea from the bottom up is impossible.

-Regulations are unmanageable.

In short, it [is] impossible to do your job, at least at a satisfactory level. There are jobs in the Air Force which I'm interested in. The chance to land one of these jobs is the reason why I'm sticking around (sorry, they are not in Systems Command).

9. My job could be great, but it's mismanaged and there are too many additional duties. They detract from the job. Supervisors have a bad attitude, they don't care. Civilian it is.

10. In my current position, I am doing mostly "in house" engineering. I like the job, however, I have found that it is not what I had expected to do when I entered the Air Force. There are other positions in the same career field which I feel I would prefer. I wish I had more input and more effect on placing me in one of those positions (I have noticed that 2835 covers a very wide range of things, many of which I do not want to do).

11. I'm extremely dissatisfied with my current job in the 282x career field. The only thing which prevents me from changing jobs (PCA) is I'm afraid of getting a job even

further removed from engineering. I've spoken with many junior officers since my commission in 1986, and most of them are getting out. They don't hate the Air Force, and they aren't leaving to track down some lucrative engineering job in the civilian sector. The reason they're leaving is simple--Air Force engineers aren't being used as engineers.

In addition, the Test Wing management up the chain form me is civilian except for the Wing Commander. Consequently, nearly all of the collateral duties are delegated to the military members instead of the civilians. This further ensures military engineers here spend less time doing their jobs and more time doing "more important" things. The predominantly civilian management is common throughout most of Systems Command's Product Divisions; it would be interesting to hear what engineers in the other Product Divisions have to say about their jobs.

12. I have a very unique job in that I do quite a bit of hands on design work (electrical). Many Lts I know are dissatisfied because they feel the AF is "wasting" their degrees. They were educated for one discipline (engineering) and forced to work in another (acquisitions/project management). They feel that if the AF wants managers, they should hire managers----NOT engineers.

13. Great hands on experience. Great panoramic exposure to industry. Lousy pay. Too many flaky additional duties.

125. I feel that one reason some officers may get out is that they don't want to go to AFIT for an engineering degree, and the civilian institution program is almost non-existent now!

14. No time--too much paperwork for comments.

15. Although my responses were good, not many people enjoy the benefits as having a job like this one where a lot of hands on work is available. I would say this job is one of 10% of jobs in the Air Force for engineers where hands on work is available. I will be staying in the Air Force, but I have an assignment to the Air Force Academy as an instructor. I doubt there would be much excitement on my part in going to a SPO as a junior captain to be an "engineer." Many engineers that I know are getting out of the Air Force. The reasons cited are lack of engineering jobs and a general perception that the Air Force does not appreciate engineering talent. An (the?) engineering bonus would help.

16. Some junior officers have more experience then others, due to prior working experience (in or out of the Air Force). Supervisors should recognize this fact, and better utilize (tap into) this experience. When this does not occur, individuals "stew" in their own potential, and are often frustrated while searching for opportunities to fulfill their potential and use their experience.

17. My experience to date as an Air Force officer/engineer has been very satisfying and personally rewarding--mainly because I have had the opportunity to tackle problems in the manner which I saw fit. I was given a great deal of latitude in my job, all the while with clear understanding of what was ultimately expected of me. Things could have been significantly improved however with a more complete and formal training program than was offered by my EN home office. I have also appreciated the opportunity to choose between detail engineering and broader scale engineering management, and to balance my work between them as I saw fit in order to do my job.

18. Air Force wants to recruit and retain engineers, but doesn't want to let them do engineering work. Unless you're one of the few who get assigned to laboratory work, you end up managing contracts. If you get a SPO assignment you definitely don't get to do engineering. Most engineers want to do just that: engineer.

19. Providing engineering support for the acquisition career field was an adjustment from the visions that I had expected I would be doing as an engineer. I am a manager who promulgates the government's position to the contractor. I want to do the best job that I can, but we are drowning in bureaucracy and legislation. However, instead of fretting about the situation, I will continue to do the best I can.

and I will continue to strive to make things better. In other words, I will do my best to make sure that we acquire working, quality systems.

20. At the end of my obligated service I'll have 11+ years total active military service. The prospect of putting in 9 more years and retiring as a major at age 43 is appealing, BUT! I have been offered very attractive positions outside the military. I must weigh another 9 years of low pay, personal sacrifice, entering civilian at 43 vs 34, and the O4 retirement pay against: high pay, stable employment conditions, and 9 years extra seniority and payments to an IRA. I like the Air Force but I have a family to think of. At the present time we live from paycheck to paycheck. At the rate housing prices are rising if I stay in for another 9 years, would I be able to afford [a] home for my wife and kids? I think not. If the Air Force and Congress start the engineering retention bonus program again my decision would be to stay [in the] Air Force. I could serve my country and provide for those who mean the most to me. My family must come first. However, no one can say I haven't served my country after 11 years.

21. I would be more likely to remain in the Air Force if I could trust them (AF and Congress) to uphold their end of the bargain. They began reneging the moment I signed the scholarship contract. Before I graduated, they changed my

retirement benefits. I'm tired of hearing about COLA freezes. And now they're talking about medical user fees. All benefits are steadily eroding. And just so that I know how very highly I am valued, I am paid one day late every month. Anyway, the Air Force doesn't want me to stay. MPC keeps saying that there are way to many engineers in the 1986 year group. They just don't need us (any of us). When our year group reaches the end of our commitment, I will be surprised if you can't count the ones who stay on the fingers of your right hand.

22. A lot less "hands on" than industry. ROTC experience and advisors told me the AF would be more management than design. In the laboratories (FDL) I have a unique opportunity to do as much hands on as I want. Most of my work is management, requiring my educational and on the job experience. I expect my future assignments to be much less hands on.

SSD 27xx Officer Comments

1. Too much of the "good stuff" goes to the civilians and military feel like token contributors to the mission. Civilian supervisors encourage this attitude--joke's on us.

2. Since career intentions are basically formulated in the beginning years, an officers first job assignment is important. General Cromer at Space Systems Division has

implemented a PCA policy station wide to encourage young officers to seek job satisfaction and gives them an opportunity with the PCA program. Total Quality Management will also help with job satisfaction. Job satisfaction is an attitude. Many young officers forget their first obligation is to be a good Air Force officer, not a good engineer or scientist but Air Force officer. Flexibility is key.

3. I obtained my commission via AECP! Realistic career guidance and specific job details were extremely lacking in preparation for commissioning.

4. I am dedicated to the service of my country, but it's the attitude of my peers that is the source of my disillusionment.

5. As the Titan IV cost analyst I have had a lot of exposure to C/SCSC and cost analysis. I have enjoyed this although it is in no way related to electrical engineering. I am satisfied with my job only because nobody else in the SPO understands what I do so I basically supervise myself. I enjoy this autonomy and the challenges that it presents. The single greatest reward that I have found has been in my exposure to contractors. I interface with middle to upper level managers as a 2Lt. I would have waited 10-15 years to interface at this level as a civilian. I am ready to try

and utilize my engineering degree and hope I will be allowed to in the future.

I am concerned about the lack of leadership in the Air Force. None of my supervisors have been effective managers or leaders. I have written both of my OERs to date, have never received career counseling or performance feedback. Supervisors should receive some kind of training.

I am concerned about what my options for a second assignment in the 27xx career field are. I would like to go to Europe for at least 1 assignment but I do not know how to find this information or whether it is possible in the 27xx career field.

The amount of formal training for most people on this base is extremely low. I received extensive training only because the person that I replaced arranged everything. Most people never get training until they pursue it. This adds to the level of frustration that incoming officers experience.

6. I like the type of work and the people here but the administrative work is taking too much of my time. I would probably leave [the] Air Force to receive some "hands on" experience.

7. My career has been satisfactory because I have made it so. The most rewarding segments of my job have arisen from my own initiative and have only just been "allowed" by the

AF. The least rewarding have been the myriad of extraneous and inane secondary duties mostly dealing with inefficient bureaucracy. Also, the increasing incidence of regulatory restrictions on follow-on employment are surely incentivizing an exodus of capable AF officers. Some examples are:

-new legislation on a 2 yr period which must be endured before working in any DOD related industry (roughly 75% of US industry?)

-"Drop of the dime" PCSing of end of term ADSC officers in AFSC and Space Command.

8. I believe there should be a prerequisite of contract-type school before a 27xx enters their job. Instead, I must wait 6 months on the job and then get on a waiting list. Also, I felt that my office asked for my specialty code but in actuality didn't have a "real" job ready for me. I'm still awaiting real work and responsibility. Right now, I'm really a glorified administrative assistant. I do enjoy the Air Force and if I chose my AFSC code again I would have chosen a more technical area rather than contracting. The reason I will probably separate is that I will want children soon and the Air Force is extremely difficult to be in and raise a baby too; I'll need part time work for awhile.

9. ROTC should provide more truth in their advertising. If this were a civilian job, I would be actively pursuing

another one. Neither my job nor that of other 27xxs I have talked to resembles what we were told we would be doing. (Outside of being Exec.) I do not trust the AF to take care of it's people the way it says it will. I would have had little problem with the job I am currently doing if it had been what I was told it would be.

10. On paper and in description my 27xx career field looked good. In reality though, I'm embarrassed to tell people what I really do. I'm used as a secretary/clerk and as a net to catch all the additional duties that come through. I don't mind having additional duties, but not in place of real significant work. Within my SPO, most of us are 27 or 28s. That means we have a lot of technically competent officers who should be highly productive if managed correctly. Unfortunately, the SPO is micro-managed and only a very few are utilized to their potential. It is not surprising, then, that most of the young captains in my area are getting out of the Air Force. I came into the Air Force motivated and hoping to stay 20 years. Unfortunately, I feel my talents are being wasted/ignored and I will very likely get out after my commitment is up. I wish I had something more positive to say, but the truth is I'm very disappointed in my job and the Air Force.

11. All too often I hear officers in my career field say "I want a job where I can do real engineering." These

people were obviously not given sufficient information about their future careers during their commissioning programs. I was somewhat aware of the work I would do only because one of my ROTC instructors had the same AFSC. I believe it is essential that commissioning programs expose future officers to the type of work they will be doing as much as possible. Airplane rides are fun but I haven't even seen an Air Force aircraft since coming on active duty. Realistic job exposure early could save discontent later on.

12. While I am not using all the technical knowledge I obtained getting my degree, I believe that the thinking processes that I was taught are extremely important in executing my job.

13. In my situation the job is to place satellites on top of the Titan IV rocket, however, most of my time is spent making contractual changes and coordinating packages to place more money on contract. The actual management of hardware interfaces, planning, and scheduling is done by a contractor at Martin Marietta. If the contracting staff had more manpower, I could do more planning and scheduling to improve on productivity. Also I would be able to attend technical interchange meetings and direct the technology aspects of the integration. Engineers can do contractual work but are better utilized to make technology, planning, and schedule decisions and monitor their progress.

14. Many CGOs I speak with felt they would have more hands on engineering experience than this. Only later does one realize that we manage contractor engineering efforts, not take part in them.

15. Reference question 8: If I had known what the job really entailed i.e. engineering management vs engineering, I would have been more mentally prepared to do management. I also would have taken a few management courses while at school. The "management/leadership" courses in AFROTC do not apply to a business oriented job, like the one I have in AFSC.

16. The 27xx career field and the 28xx field are treated exactly alike here at SSD--which is fine with me since the only reason I'm not a 28xx is because MPC decided that there were too many engineers in 1986 despite giving all of us engineering scholarships. In project management sense, an engineering degree is not really necessary although it helps to have one when technical jargon flies. I have worked propulsion systems, systems engineering, mechanical engineering and even some software engineering items as well as electrical, although the only degree I hold is in EE (in engineering). My bachelors in english is probably the most useful of the two in this career field. What I dislike is the wide area of potential jobs--everything from project engineer/manager to budget analyst to cost analyst to view

graph maker (my 1st job). It seems that 27xxs are thrown into any of those jobs if there's an opening despite the individuals background and it is very difficult to get even a secondary AFSC in something else since MPC is so stingy about giving 27xxs a chance to get out of 27xx. The career field should be better defined and 2Lts coming in should have some training right off on how to deal with contractors, proposals, etc. before they're on the job, not after 6 months or 2 years the way it works now.

17. I was expecting more of a challenge in my job. As of now, I am learning good clerical skills (i.e., typing, filing, writing letters, etc.) I would like a job where I could learn to be a manager or an executive.

18. My responses have been personal and I feel that my experiences are unique. It is true that much responsibility is granted to young lieutenants, but the worthwhile and meaningful job experiences seem to be infrequent. In my case, it was involvement with the ill fated HI-CAMP program. I was allowed to plan experiments and see their execution as I led the endeavour. I was also fortunate enough to go to Australia to brief the allies on the success of the missions. However, on a day to day basis most actual procurement work is done by the contractor. The officers, to varying degrees, become mere monitors of status, etc. I currently am a project officer for hardware items on the

Starlab Program and have responsibility but lack function. I have seen both sides, mission operations on Teal Ruby and hardware procurement on Starlab and would have to say that mission operations is both more active, dynamic and challenging. This leads me to believe that the operational Air Force is like in kind and to recommend that procurement engineers in AFSC gain operational and varied experiences.

19. AFROTC prepared me well, but there was no job orientation course when I started. It was a shock and [I] had to learn it myself. But my job is great!! No other 22 year old in the world can have the responsibility I have.

20. Sure would be nice if: 1) I knew what jobs went with a given AFSC when I was in ROTC. 2) I could have had some say in my first duty position instead of being forced into a job out of ROTC with no chance to change even when another peer wanted to swap with me! 3) I didn't get nickled and dimed to death by the AF. (i.e., when I signed up as an officer, I was told 75% of my masters cost would be paid for by [the] AF in exchange for 2 more years of commitment. Now I'm told the 75% is only up to a given dollar value per credit hour. Now I actually pay over $500 per class! Tuition is going up!)

21. ROTC does not prepare an engineer for what he is actually going to do in the Air Force. Too many of the jobs for 2nd Lieutenants are basically secretaries jobs.

22. AFIT should afford the opportunity to officers to advance their education whenever the individual requests to do so through AFIT and the individual should receive guidance and assistance to obtain the additional education. Higher education enhances the individuals worth as an essential link in the Air Force. Motivating officers to remain in the service and not separating to go into the more enticing private sector is a task left to the agencies that have this capability.

SSD 28xx Officer Comments

1. Overall I've enjoyed my Air Force career, but my present job is disappointing because it doesn't have very many challenges. Even though my duty AFSC is 2831 there is no R & D type work. I will be volunteering for several other jobs, i.e. test flight engineer, so hopefully there will be more challenges and actual hands on type work.

2. I enjoy the Air Force and my career field very much, however, the job we do out here (SLC-4, VAFB) makes most people in the Air Force feel unnecessary. We are simply monitoring the contractor's work efforts. It is a far departure for people who come in expecting to do engineering work. After a few years though, I've realized that I think I do and will in the future enjoy more being an engineering manager rather than a real engineer.

3. The Air Force has no knowledge of how to use its engineers. We are wasted in procurement jobs where we have little or no experience in acquisition procedures. The work I do is identical in form (if not format) to that done at a SPO; yet I can't be recognized as a SPO project officer. My job is one that could easily be performed by a civilian (in fact, 80% of the office is civilian). I feel that I am more Civil Service than USAF. "Career progression" that only entails transferring (sometimes) to a higher dollar project is not career progression.

4. I am very grateful to the AF for paying for my undergraduate and masters degrees. When I joined the Air Force as an Airman Basic, I had few job skills but a lot of ambition to improve my lot. In spite of making a good salary with good benefits, the day to day performance of my job is unsatisfying. My technical training is only used in 10% of my duties and it frustrates my desire to do things and be an engineer.

5. While I have limited experience I enjoy and feel I will continue to enjoy my service. The reason I checked the statement saying I will probably get out, even though I checked everything else as positive, is that I do not want to move every four years. I am an army brat and have become quite tired of continually moving.

6. My BSEE is being wasted! If I had wanted a paper pushing job, I'd have asked to work in CBPO. I'm an engineer, why not give me a job where I at least have a chance to apply what I learned in school? If that's not bad enough, the way our SPO is organized only some people are busy. Out of those, only a few do any meaningful work. The remainder take long lunches or play computer games most of the day. My only hope is that if I stay in the Air Force, I can find a job. If not, I'll go where I can earn my paycheck.

7. I think it is great that the Air Force has the education programs it does. I am grateful to the Air Force for providing a means for me to complete my Bachelors Degree. However, I personally feel that the newly graduating engineers should be given jobs in the Air Force labs. The initial hands on training an experience gained would provide the background so necessary for the acquisition project engineer.

8. The job is challenging to be responsible for multi-million dollar contractual efforts but I find I'm doing substantial amount of clerical work which slows my effectiveness. In talking to other junior officers from various product divisions, I feel my job is one of the more challenging an officer can get with positive feedback of being able to complete projects in the 1-2 year range.

9. If I had planned and desired to be an engineer, this job would be exactly what I'm looking for. Lots of responsibility, travel, working for the most part with competent, dedicated individuals. My duty station's (LAAFB) great. It doesn't really help that we're short of funding and always thinking our program is about to be scrapped, though. Frankly, though, I think there's too much bullshit involved in extra duties. I've sat on 3 committees, taking time away from my job, and I really didn't need to be there. I've had to sit in on, and deliver briefings about such topics as "don't fall down stairs or trip on carpets." I mean, if we have someone that stupid in the AF, we'd be better off without them. I'm being a bit harsh, I know, but hopefully you get my point. Also, it takes too long to get correspondence out of the office. By the time my superiors coordinate on, and rewrite "just this one line, here," the event the letter's about has already been completed, and often has to be redone because our contractor didn't get our inputs in time. Also, the letter looks nothing like the one I originally wrote, which often makes me wonder why the Colonel didn't write it himself to begin with.

10. Every place I've been, we've been overstaffed; people beating each other over the head to do what little had to be done. The Air Force should be much leaner. The Air Force can rely a lot more on the contractors/aerospace to do the

service that we're paying them to do. Or let the Air force do it. But as it is, we're someplace in the middle. Aerospace (or FEC or whomever) isn't being used effectively (by far!) and the Air Force is too.

11. Our Air Force is setting on an untapped resource of unlimited technical potential (scientific as well). Our system will never allow these highly capable and sometimes brilliant people to reach their potential and take the Air Force beyond the "cutting edge" of R & D. We proved that we can overcome tremendous obstacles in setting and attaining our objectives--we fight through the ranks, earn degrees, strive for excellence and end up pushing paper in a managers slot. We find outlets for our creativity and obsessions outside of our Air Force system (commercial system as well: take for example the inventor of the FOG-M missile system--he developed it in his basement because industry would not give him a chance!)

12. Will probably stay in to make promotion to Captain and one year commitment thereafter. This will only extend my overall active duty commitment by 8 months. After that I will probably separate (depending on the job market). Why? Look at the advancement of salaries between a 4 yr and 10 yr captain. There's no way I'll stagnate my career like that even for job security.

13. [The] Academy did [a] good job of warning us that there were very few "hands on" engineering jobs. So I knew pretty much what to expect. My greatest source of dissatisfaction is lack of adequate training for my job as a project officer in a SPO.

14. I enlisted in the AF in 1978. I was trained in Biomedical Equipment maintenance. I did a lot of hands on electronics. I was selected for an instructors position in my enlisted career field and by the time I left I was ATC master instructor qualified. I was encouraged by my commander to put my electronic training to use. I was accepted into the AECP program for an undergraduate degree in electrical engineering. I was led to believe that with my electronics background, and electrical engineering degree, and a commission I would be doing some design work--either individually or with a contractor--on systems for the Air Force. None of this is true! Sure I work with contractors, but due to the nature of our contracts they call the shots. My job mostly consist of making a project run smoothly. Maybe it's a good job, but it doesn't take an electrical engineer to accomplish it! I'm looking at possibly being assigned to a lab to better utilize my skills to my satisfaction and the Air Force's benefit!

15. I'm prior service and now have more than 16 years of active duty. My talents and experience are wasted in this job. A SSgt could do well in this position.

16. I believe the Air Force operates under the fallacy "engineers want to work in acquisitions." While this may be true for some individuals, the majority of the young 27/28 folks I've talked with expected to be applying their engineering skills solving technical problems, designing systems, and keeping in touch with their engineering roots. However, this is not how engineers are typically employed in the Air Force. Instead, engineers are forced to work as acquisition project officers, a job which requires skills young engineers generally do not possess in the initial stages of their careers (specifically managerial and business skills). This not only frustrates and angers the young officer, it also stagnates and deteriorates his vitally important engineering knowledge and talent. Further, for the lucky few who do manage to obtain an assignment in a laboratory facility, the Air Force perceives their efforts there (in general) to be somewhat career detrimental. "Everybody knows" any officer desiring an Air Force career or a simple promotion simply must have program office experience. I believe the Air Force's attitude towards its engineering core must change. Why does an Air Force allow its flyers to fly while at the same time

constrain its builders and designers who want to build or design? It isn't a question of money. Nor even one of career progression. It is a question of attitude, and I believe the Air Force is charting the wrong course.

17. Further explaining question 7: I replied that I may not be used to my full potential only because I spend time on trivial tasks--like issuing radios, shoveling manure for squadron lawns, performing squadron cookouts, etc. These tasks certainly do not require EE degrees.

18. These surveys are nice, but do they really change anything? The grass isn't always greener, but I feel that I have little to no control in my career progression or next assignment. Advance degrees are also difficult to come by at some locations. This leads officers to get a degree in a worthless field they have no interest in. They do this to fill the square. There needs to be a program between AFIT and tuition assistance.

19. My main source of dissatisfaction is that I'm being used at a level far below my potential.

20. Air Force engineers don't engineer. Neither do we manage. We pay the contractor to do all this. The Air Force really just watches. This business is full of people who just watch, which is part of the problem. We have a huge acquisition system and only a minute fraction of the people are engaged in productive work. As a watching member

of the bureaucracy, I'm part of the problem. The Air Force should tell the contractor what we want. Write a smart contract. Then, get out of the way and let him work. Get rid of intermediate requirements, MIL-STDs and SPECS. Pay the contractor based on the success of the end product.

21. When I first entered active duty, I was very excited because I obtained a project engineering slot (289x), but the position which was given to me at Space Systems Division is a program control slot, (business manager). An accountant or math major would be ideal for this position but a technical person like myself can not give a 100% effort. Although I intended on making a career out of the Air Force my attitude is rapidly changing.

22. Reference 1-10. I apply most of the organizational skills I learned in extracurricular activities in college, but few of the technical skills. I mostly manage contractors, at Space Systems Division in Los Angeles.

23. I pretty much knew what to expect from an Air Force engineering position since I had an opportunity to quiz Air Force Academy instructors. One thing I was unprepared for was the amount of time I have to spend doing secretarial work. The time I spend at the Xerox machine, answering phones, typing, building briefing charts, etc. would be much better spent accomplishing my job as a project officer. The Air Force attitude of minimizing the expenditure of money on

secretarial support and equipment seriously detracts from my ability to do the best job I can for the Air Force. If [the] Air Force refuses to hire competent secretaries at least provide us junior officers with adequate equipment to rapidly do the secretaries job so we can get on with our own.

24. The senior management and the overall bureaucracy of the Air Force acquisition process make me very upset as a government employee and as a taxpayer! We are extremely inefficient and wasteful. The people are generally quite good with the exception of some civil servants who are here on welfare it seems (no one else would here them and the government can't get rid of them).

25. The main reasons I'm very dissatisfied are: 1) Poor management and leadership skills of my superiors. 2) Although my job title is "engineer" my day to day activities mainly involve contract negotiations, paper work management, and plain typing. 3) The people I work with are incompetent.

26. I would be satisfied in one of the few Air Force officer positions in the government labs that actually work in an area that utilizes their education. For most of the jobs in acquisition, a business degree would be more applicable, or perhaps a degree in communications. The Air Force doesn't really need engineers, as long as they have

support organizations like Aerospace Corp., Lincoln Labs, etc. The Air force cannot provide the environment for people with creative minds to excel and be happy with their job. Fortunately, the majority of the people who serve still desire to do well at what they do, in spite of their like or dislike of the actual job, and they are treated well. The only way to balance the deficiency in creative opportunities would possibly be to reinstate some kind of engineering bonus. Retention will go up although the people still won't enjoy their work any more than they currently do. I do think that General Randolph's policy letter on professional conference attendance is a step in the right direction.

27. We have an outstanding group of people! I just hope the AF is flexible enough to provide me the opportunities to meet my personal goals.

28. I trained to be an engineer--let me be an engineer!

29. I received my first choice for duty location and my job at that location. What more could I ask?

30. My current job is not associated in any way with my career field. I am a 28xx working in a 27xx job. There is no engineering involved. Hopefully, I will be going somewhere closer to my career field in the next few months.

31. I feel I was lucky to be assigned to this job not necessarily this AFSC. I have noticed other jobs at Space

Systems Division with the AFSC that would not be as fulfilling. [This respondent identified himself as a 2891, Titan Flight Controls Manager]

32. Space Systems Division is a unique atmosphere. I think most people assigned here enjoy their jobs due to the many hands on opportunities and unity with one SPO. I think being matrixed often detracts from team spirit. I see many people leaving the Air Force after being assigned here due to [the] discrepancy between civilian and military pay levels and due to the "types" of jobs available to people to people assigned here in the name of "career broadening." Serious consideration should be given to engineering incentive pay to retain a top level of "blue suiter" engineers. AFSC's decision to allow educational TDYs in one's career field to attend special seminars/classes was a positive step in the right direction. This is a great tool to motivate stagnate engineers.

33. I'm getting out to go back to school for a PhD in chemical engineering. My greatest frustration with the Air Force is the difficulty in going to graduate school while on active duty. It's much harder to get into AFIT than it used to be, and it's almost impossible to go to school part time when you're TDY 3 weeks per month. As an engineer, I'd like to be able to delve into the technical details of my work, but there isn't time. I spend a lot of time on contractual

actions and paperwork. I enjoy the technical meetings with the contractor and planning and participating in tests, but that only amounts to 1/3-1/2 of my job.

34. [The] AF will keep me at least 10 more years (total years will be 26 at that time). I hope to get a chance to do some "hands on" engineering for the Air Force!

35. I believe the bonuses should be re-initiated in my career field. I see a lot of people separating from the Air Force to make more money in industry. This has a great effect on the quality of work that is getting performed. The good engineers are getting out.

36. Air Force careers would be more attractive if there were more opportunities for officers to get master's degrees from civilian institutions on a full time basis. Speaking for myself, after having attended USAFA I do not see two years at Wright-Patterson as being especially appealing. On top of that, although AFIT is recognized as a respectable graduate level institution, I think that a USAFA graduate with a normal AFIT degree would be somewhat lacking in "real world" perceptions and not as valuable to the Air Force as an officer with both Air Force and civilian backgrounds.

37. As a former president of the CGOC and as an attendee of the annual CGOC conference for AFSC, the recurring number 1 concern of all CGOs across AFSC is job satisfaction. At Space Systems Division, many of my peers are getting out

after their initial commitment, if not earlier. It's unfortunate, but common sense and basic math is all you need for most 27 and 28 jobs. Although there is a lot of potential for responsibility, most higher level managers (O4-O6) will not allow CGOs to take it on. If I had to do it over again, I would have went into the civilian sector.

38. I am separating from the Air Force, but the reason, for this does not reflect any criticism on the Air Force whatsoever. I am very satisfied with my job, co-workers, and environment. I have been called, however, to serve Jesus full time, and I will be leaving the Air Force to pursue this path.

39. Software and computers is not a well understood field. It has major impacts on almost all USAF technology, yet very few adequately trained personnel are available. This is frustrating but also a tremendous opportunity.

40. I intend to remain in the service until I retire. My career goals include obtaining an assignment that would require a little more "hands on" involvement in circuits design and development. While there are not many of those around, I'm sure there are some that require more involvement than what I am doing now. As I gain experience and rank, I am sure I will be assigned to a managerial position. So, now is the best time to work "hands on." My educational goals include obtaining a master's degree in

electrical engineering through AFIT. I also hope to earn a PhD while still on active duty.

41. Poor quality management. Even if the program might seem successful, the inside story is different. [It is] hard to impose value on the contractor when management doesn't support the Lts action. [The] Lt loses respect from [the] contractor. Management doesn't take risks against contractors whenever the contractor deserves punishment. Superiors are not good examples of military customs. They are the ones who don't get haircuts or don't enforce military behaviors. [The] AF is so laid back in this area (career field of acquisitions) sometimes I feel I work in a civilian company. That special feeling of being a military member is sometimes hard to get. I enjoy the AF and I'm proud of it, but no matter how much I try, the essence is just not there. Superiors should get their act together and make it worthwhile.

42. The Air Force needs to phase in an initial operational service requirement. I feel I could function much better if I had at least 2 years experience in a "hands on" Space Operations job. I believe every officer entering the Air Force should have at least 2 years of real time mission experience. After two years, these officers would then be eligible to begin service at the product division which provides the hardware they had mission experience in.

43. I am a 28xx doing the principle job of a 27xx. While people have informed me that no fine line exists between 28s and 27s, it is discouraging to be working entirely acquisitions. I have been placed in a job where I have to do all this work to prepare for a RFP release that I have not had time to go to Systems 100. That is wrong. By the time I can [go], I probably won't need it! The AF needs to utilize their personnel properly and provide adequate training.

44. I like the job that I'm doing even though it doesn't require much of the education I have. Overall, I think the Air Force is a good profession and most of my fellow officers a good people to work with.

45. As I indicated in the survey, I have decided to definitely separate from the Air Force. I have enjoyed my job in the Air Force and did not decide to separate because of job dissatisfaction. I just felt it was time to move on and do something different outside of the defense industry.

46. I don't feel the job I do really justifies the requirement to have an engineering degree--it's a low level management position which has no technical work involved. The position could be filled as effectively with a management major. I think a review of these types of positions is in order--there are undoubtedly some that could

be reclassified. In this way the Air Force could more effectively use its engineers.

47. Our pay is not commensurate with our responsibility. I would like to take an assignment at Space Systems Division located in Los Angeles, CA. To do so, because of the cost of living, I would lose 4000-5000 dollars a year. A move to SSD would be consistent with my career and help me obtain level III acquisition certification, but at great expense to my income and family life style. Another look at the VHA for SSD is necessary before I would ever consider LA/SSD a good place to live and work. Who ever tells General Randolph that pay isn't an important part of a successful career, doesn't know what they are talking about!

48. My attitude toward how the Air Force placed me in a job is very, very negative. I was an AECP student going to Wright State University for a degree in electrical systems majoring in VLSI systems and controls. Approximately 18 months before graduation, I interviewed everywhere at Wright Patterson a 282x might work. I got tours and explanations of what various sections do from day to day. I was very impressed with the microprocessor (VLSI and VHSIC) laboratory and the manager in charge was equally impressed with me. We started a Staff Summary Sheet (any effort was worth a try) and hoped that when my assignment came up, it would be to Wright Patterson. It came up LA.

I graduated Dec 1987 and my OTS start date was 23 Mar 88. I was told to work or take leave during that four months of casual status. I worked in the microprocessor lab familiarizing myself with ADA and various graphics designer tools used there while constantly trying to convince the higher ups that after such familiarization, it would be a waste and abuse of government resources (me) to ship me to LA and ship someone else to Wright Patterson to fill the slot coming open in that very lab.

I came to LA, California after MPC convinced me that I was much more needed here. Reality struck when I got here and no one had any idea that I was coming. I figured as much. The real kicker is that I visited the manager of the micro lab after OTS and he was upset because he was short handed and he did not know when the Air Force would allow him another 2821. For that matter, he would probably get someone who wasn't even interested in VLSI or VHSIC. If I get YANKED like that again--I'm outta here.

49. I am a project manager. The Air Force should offer courses in this subject especially to AFSC junior officers. Many junior officers are not exactly sure what their role as a project manager is all about.

50. My education has not been utilized at all. while 288x is an optimum AFSC, for me there's no training, or proficiency. All that's required to achieve a 5 level is to

be alive for two or three years. It seems that it was a waste of the governments money to fund part of my education. Since I haven't used my education in four years, it seems I've wasted my time. I've wanted to be an engineer since I was five years old. I haven't been allowed to do that in the Air Force, so I'm going to try to do it elsewhere. Unfortunately, most of industry is aware of how little Air Force engineers do engineering, so they have been unwilling to employ me in that capacity. Thanks for the B.S.

51. I am currently receiving tuition assistance for night graduate courses and find that I must finance nearly half of the course fees, which is a substantial amount. After an informal survey of the local corporations policies toward part-time school, I find the AF is one of the only institutions which does not totally reimburse their part time students. I think the AF would reexamine the added benefit of having students attend class part time and adjust their program accordingly.

52. I have a great deal of responsibility which I enjoy, however, a lot of the work we do is just clerical because of the poor secretarial support we have--that gets discouraging at times. The 28xx career field is great experience but many of my co-workers (myself included) would enjoy an operational tour also.

53. A vast majority of work performed could be completed by 702 administrative people and officers with business degrees. Their is no need to put technical/engineers in these kinds of fields at the current level. We are wasting good engineers and scientists.

54. One of my major complaints as a prior service officer is the lack of ability within the Air Force to achieve a level of responsibility commensurate to my proven abilities. I was allowed the opportunity, (I thought) for the commission because I had demonstrated some level of responsibility. I think I have also demonstrated abilities to warrant more responsibility in my present job. However, no more can be given because of the rank I hold.

55. Too much micro-managing in the test communities. Too many new officers go to a SPO as their first assignment. This causes many problems. On contracts where an additional contractor is hired to provide technical expertise and hold the Lt's hands, an engineering degree is not required by the blue suiter.

56. Contractors and their unions are a pain in the butt to work with.

Comments From Other Survey Respondents

The following comments are taken from surveys in which some of the information about the respondent was missing. Any information known is given following each comment.

1. Even though I would say that my job is markedly different than my training (formal education), I would like to say that I do appreciate what I am learning. Also, the fact that I am presently thinking I will get out of the service after my commitment has nothing to do with career satisfaction. It's just a matter of wanting to pursue other interests. The Air Force does have a lot to offer, and it does warrant more thought before I decide for certain. P.S. Learning to deal with bureaucracy and the civil service factor have been the biggest sources of frustration. Not enough to cause me job dissatisfaction or career indecision, though--yet. [2721]

2. I'm currently career broadening into this career field. So far, I find this to be a very interesting and exciting career field and would like to remain in this career field if I remain in the Air Force. [2724]

3. I want to return for school to obtain my masters at a prestigious college and not incur additional service commitment. I may join the reserves. Compared to my civilian peers in engineering, the pay is better and

sacrifices less in civilian employment. I would also have the option of doing more hands on engineering. [27xx]

4. The public procurement industry are experts at shooting themselves in the foot. Their solution to cleaning up the system is to punish the honest folks by over regulating them. The contracting and manufacturing staff should be cut in half and more authority entrusted to contracting division chief for signoffs. (Kill review cycles for efforts under $10 million). Acquisition management is an excellent place to gain responsibility early in your career. I'm definitely not leaving by choice because the Air Force waived my 15 March 1991 ADSC date to kick me out. [ASD]

5. Pay allowances partially reduce the cost of housing in high priced local economies, but does not cover for increases in car insurance in these areas. Professional degrees are encouraged by the Air Force, yet educational assistance funds are being reduced. [2845]

6. I feel the Air Force gives its junior officers a great deal of responsibility. I wish my current job was more applicable to my career field. [2881]

7. At any given time almost, I could have the total opposite feelings about the AF. Currently, I am transitioning to another job within our program office and feel that finally I'm being recognized for the contributions

I've made. Further I will be getting married to an AF career oriented officer next summer and that increases my aptitude to stay in the AF (career development, joint spouse opportunities, etc.). I am not an engineer and am thus not disappointed with "not using my engineering degrees" as is so often heard. Rather, the AF paid my tuition through ROTC and insisted that I major in Math. I am technically/mathematically oriented but believe I'm using more of the other things I learned in college--i.e., management, interpersonal skills. Currently, I am pursuing an MBA outside of AF offerings. [2724]

8. Although I like the responsibility and the travel associated with working with contractors, I feel limited in what I can actually do as a Lt. As for getting out, I see unlimited possibilities in the civilian workforce, as opposed to a regimented, planned career with promotions every "X" number of years in the military. I don't have as much control over the future as I would like if I was to stay in the Air Force for a career. [2831]

9. Although our job titles say "engineer," all we really do is manage contracts. Since this in itself requires very little to no technical expertise, I do not feel that we are being utilized as engineers at all. Much of the contractor work that we manage could be accomplished by ourselves with better payoff to the Air Force due to the experience gained.

Other than the fact that I do have a technical background, my education has not proven useful in the job I am doing. My particular area of specialization is not used to its full potential although it could be if upper level management put the right people on the right tasks. I do plan on staying in the Air Force for now, but I do expect to be sent for my masters within the next couple of years. If this does not happen before my service commitment is up, it would most likely change my views of staying in the service. [2821]

10. I would like to see a clearer and more easily understood career path hierarchy in my field. [2851]

11. I would still go through ROTC not because of a burning desire to be an acquisition project officer, but because it is a means to an end. Specifically, a bachelors degree from a prestigious university. The job is unsatisfactory to me because I am not being utilized to my full potential even though I ask for more work. Besides, I don't see that we truly accomplish anything but pushing papers and making phone calls to see how the contractor is processing. Brain power and talent aren't needed to a great extent at the Lt/Capt level. I'm not just a bitter Lt. who has a vendetta against the Air Force. I find my peers feel the same way as I do, although maybe not as cynically. [2724]

12. When I first arrived at my present job, I tried to learn all the technical skills I could. I later realized

that I didn't need these technical skills. But I have learned other skills useful at my job; typing, how to use a copy machine, how to set up a meeting, how to make vellums, etc. Please read the attached article. The article is right. I spend most of my time seeking funds for my paper project instead of doing real work! [2825, The enclosed article was from the 31 July 1988 edition of the LA Times entitled "Private Industry's Lesson for the Pentagon"]

13. I am not satisfied with the training I'm receiving for my career field; however, I realize that this isn't necessarily indicative of the type of work I'll be doing once I've completed this training phase and I hope that my job satisfaction will improve after I've completed this training. I think a more condensed and structured training program would greatly increase job satisfaction and performance. [ASD]

14. I am very satisfied with my career in all aspects <u>including</u>: challenge, responsibility, and leadership. <u>except</u>: in a very realistic point of view with a young family in mind, I don't believe I and my family are sufficiently compensated for the sacrifices we make for the high cost projects I handle. For financial reasons, and only for that reason, am I planning on separating. [27xx]

15. Program control functions are not viewed as important to [the] SPO. I feel every Lt. with 27xx should be first

assigned to program control to get an overall view of the SPO. In addition, it should be mandatory to be reassigned within the SPO after 18 months in program control as a minimum. Because what we have is 2Lt staying in program control for 2 years or more which is very bad for our careers. [2721]

16. I've started every new job with enthusiasm and a professional attitude towards the Air Force. After 4 years most of my peers and I agree that we could not spend 20+ years in Systems Command or any command doing the type of work we currently do. Face it, how do you feel good about your job when the highlight of your week is getting a letter signed? Good benefits and a decent paycheck aren't enough to keep the best officers. They're looking for something more.

17. My experience as a configuration management officer used very little of my college education, introduced me to the negative side of working with civilians, and turned me off toward the Air Force. I have been a Flight Test Manager for 3 months of my total 15 months on active duty. I should have started here and not in configuration management. Definitely a more representative job for someone with an engineering degree.

Appendix C: Variable Description and Survey Data Base

Each column of the survey data base corresponds to one variable as defined below. The data itself is shown immediately after the descriptions.

Variable Description

Column	Variable Name	Description
1	SPO	Assigned Product Division 1 = ASD 2 = SSD
2	EX1	Expectations, Question 1
3	AE1	Applicability to Education Question 1
4	EX2	Expectations, Question 2
5	AE2R	Applicability to Education Question 2, Reverse Scaled
6	AE3R	Applicability to Education Question 3, Reverse Scaled
7	AE4R	Applicability to Education Question 4, Reverse Scaled
8	AE5	Applicability to Education Question 5
9	EX3R	Expectations, Question 3 Reverse Scaled
10	AE6	Applicability to Education Question 6
11	EX4	Expectations, Question 4
12	SAT1	Job Satisfaction, Question 1
13	SAT2	Job Satisfaction, Question 2
14	SAT3	Job Satisfaction, Question 3

Column	Variable Name	Description
15	SAT4	Job Satisfaction, Question 4
16	SAT5	Job Satisfaction, Question 5
17	SAT6	Job Satisfaction, Question 6
18	INTENT	Current Career Intentions
19	AFSC1	Assigned AFSC 1 = 2721 2 = 2725 3 = 2741 4 = 2744 5 = 2821 6 = 2825 7 = 2831 8 = 2835 9 = 2841
20	AFSC2	Assigned AFSC 1 = 2845 2 = 2851 3 = 2855 4 = 2881 5 = 2885 6 = 2891 7 = 2895
21	COMM	Source of Commission 1 = USAFA 2 = ROTC 3 = OTS 4 = USNA
22	RANK	Current Rank 1 = 2nd Lieutenant 2 = 1st Lieutenant 3 = Captain
23	SEX	Respondents Sex 1 = Male 2 = Female

Column	Variable Name	Description
24	JOB	Current Job Title Category 1 = Program Manager 2 = Manager 3 = Engineer 4 = Other
25	EDUC	Highest Level of Education
26	DEG11	Undergraduate Degrees 1 = Aeronautical/ Astronautical Engineering 2 = Aeronautics 3 = Aviation 4 = Business Administration 5 = Business Management 6 = Chemistry/Physics 7 = Civil Engineering 8 = Computer Science 9 = Computer Science Engineering
27	DEG12	Undergraduate Degrees 1 = Construction Administration 2 = Economics 3 = Electrical Engineering 4 = Engineering Management 5 = Engineering/Engineering Sciences 6 = Engineering Physics 7 = English Literature 8 = Fluid Dynamics 9 = History
28	DEG13	Undergraduate Degrees 1 = Industrial Engineering 2 = Industrial Technology & Management 3 = Industrial Arts Education 4 = International Affairs 5 = Management 6 = Management Information Systems 7 = Mathematics 8 = Mechanical Engineering 9 = Political Science

Column	Variable Name	Description
29	DEG14	Undergraduate Degrees 1 = Procurement & Material Management 2 = Procurement & Acquisition Management 3 = Science 4 = Sociology 5 = Systems Management 6 = Systems Engineering
30	DEG21	Masters Degrees or Additional Bachelor's Degrees (Codes are the same as those used for the undergraduate degrees.)
31	DEG22	Masters Degrees
32	DEG23	Masters Degrees
33	DEG24	Masters Degrees
34	YEAR	Year in which respondent received latest degree
35	JOBLGTH	Length of time in current job
36	ADLGTH	Length of time spent on active duty including any prior enlisted time

Survey Data Base

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Appendix D: Briefing Charts

A STUDY OF THE ATTITUDES OF JUNIOR ACQUISITION MANAGERS AND ENGINEERS AT ASD AND SSD

Steven L. Pearson
Captain, USAF

Overview

- Likert Research
  - Background
  - Hypotheses
  - Research Approach
  - Survey Variables
  - Summary of Likert Analysis
- Content Analysis
  - Categories
  - Summary of Content Analysis
- Conclusions
- Issues

Background

- Aeronautical Systems Division (ASD) and Space Systems Division (SSD) appear to use 27xx (acquisition manager) and 28xx (engineer) resources differently
  - ASD places 27xx officers directly into program offices and uses a matrix to bring in 28xx officers as needed
  - SSD appears to use 27xx and 28xx officers interchangeably

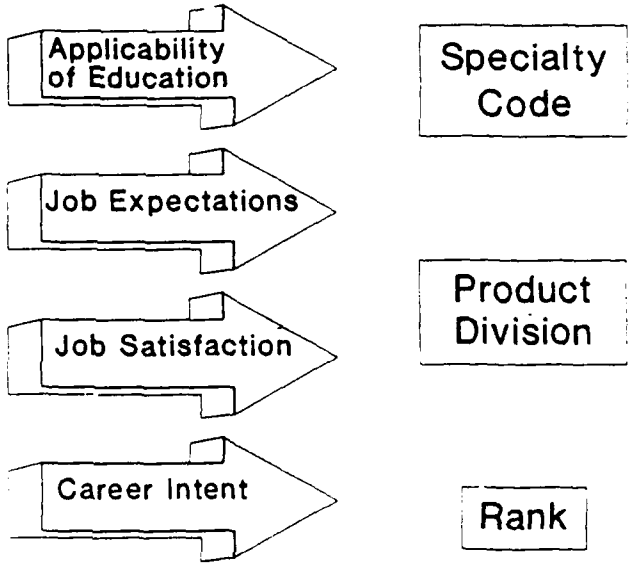
Hypotheses

- ASD officers are in jobs more applicable to their education
- ASD jobs are more in line with officer expectations
- ASD officers are generally more satisfied with their jobs
- ASD junior officers are more likely to remain beyond their initial commitment

Research Approach

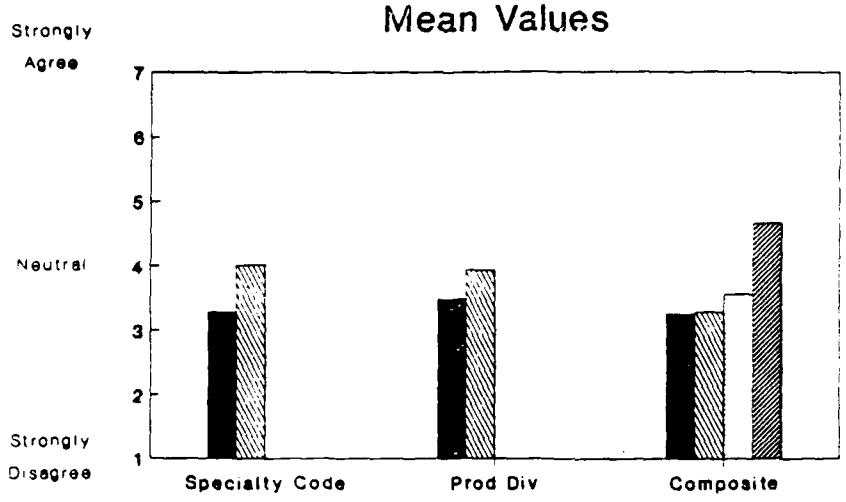
ASD and SSD
Junior Officers

27xx and 28xx
2Lt, 1Lt, and Capt
(435/313/276)



Applicability of Education

Mean Values

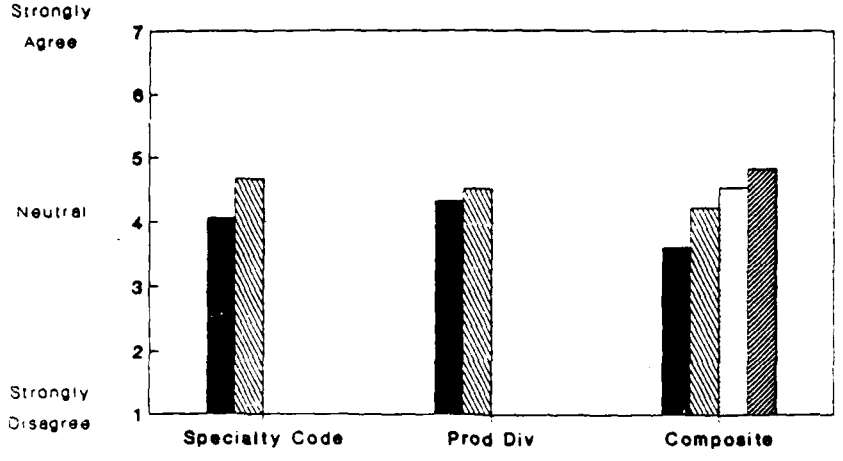


The degree to which the individuals feel their skills and education are being used in their job.

Applicability of Education

- 28xx officers believe their education is significantly more relevant than 27xx officers
- ASD officers believe their education is significantly more relevant than SSD officers
- ASD 28xx officers believe their education is significantly more relevant than SSD 28xx officers and all 27xx officers

Job Expectations
Mean Values



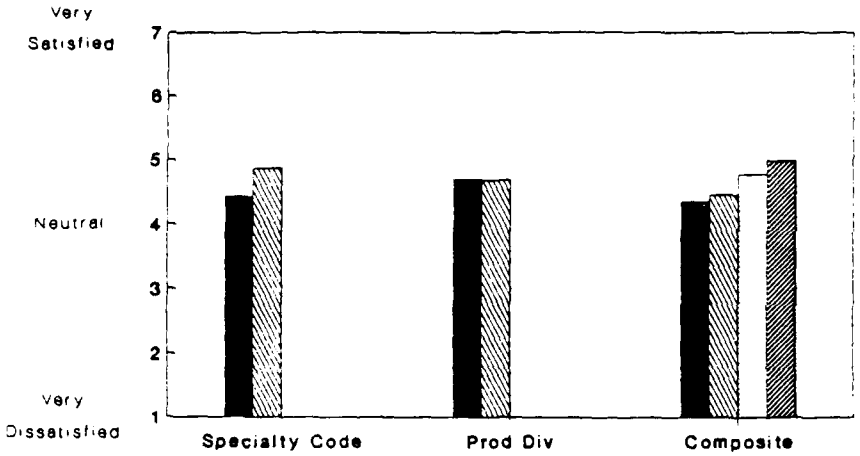
27xx (4.06)
28xx (4.67)
SSD (4.33)
ASD (4.52)
SSD 27xx (3.62)
ASD 27xx (4.24)
SSD 28xx (4.55)
ASD 28xx (4.85)

The degree to which the individuals job met any preconceived ideas about what the job entailed before entering the Air Force.

Job Expectations

- 28xx officers believe their jobs match their expectations more than 27xx officers
- ASD officers believe their jobs match their expectations more than SSD officers

Job Satisfaction
Mean Values

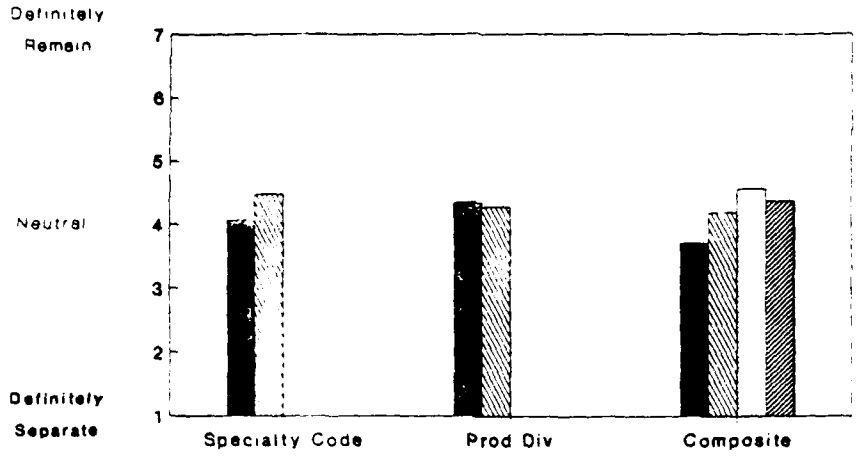


The overall level of job satisfaction to include co-workers, resources, working conditions, and career field.

Job Satisfaction

- 28xx officers are more satisfied than 27xx officers

Career Intent
Mean Values



27xx (4.05)
28xx (4.48)

SSD (4.36)
ASD (4.28)

SSD 27xx (3.71)
ASD 27xx (4.19)
SSD 28xx (4.56)
ASD 28xx (4.37)

The current intention of the individual toward remaining in the Air Force after completion of his/her active duty service commitment.

Career Intent

- Most officers weakly agree they will not separate after completion of their initial commitment

Summary of Likert Analysis

- 27xx officers are a more serious concern than 28xx officers
- ASD 28xx consistently more positive
- Junior officers approximately neutral with regard to career intent

Content Analysis

	Positive	Negative
ASD	31	45
SSD	29	68
27xx	26	49
28xx	34	64
Unknown	8	14
Totals	68	127

Positive Comments

	ASD		SSD			
	27xx	28xx	27xx	28xx	Unknown	Total
Air Force (Overall)	5	7	2	7	3	24
Job (Overall)	3	5	3	8	1	20
Responsibility	7	2	4	3	3	19
Pay and Benefits	2	0	0	2	1	5
	17	14	9	20	8	68

Negative Comments

	ASD		SSD			
	27xx	28xx	27xx	28xx	Unknown	Total
Bureaucracy	9	3	2	7	3	24
Clerical Duties	5	0	6	4	1	16
Engineering Jobs	8	8	8	27	6	57
Education & Training	5	1	4	3	1	14
Pay and Benefits	1	5	1	6	3	16
	28	17	21	47	14	127

Summary of Content Analysis

- Content analysis indicates satisfaction with:
  - Air Force (Overall)
  - Job (Overall)
  - Responsibility
  - Pay and Benefits

  and dissatisfaction with:

  - Bureaucracy
  - Clerical Duties
  - Lack of Engineering Jobs
  - Education and Training
  - Pay and Benefits

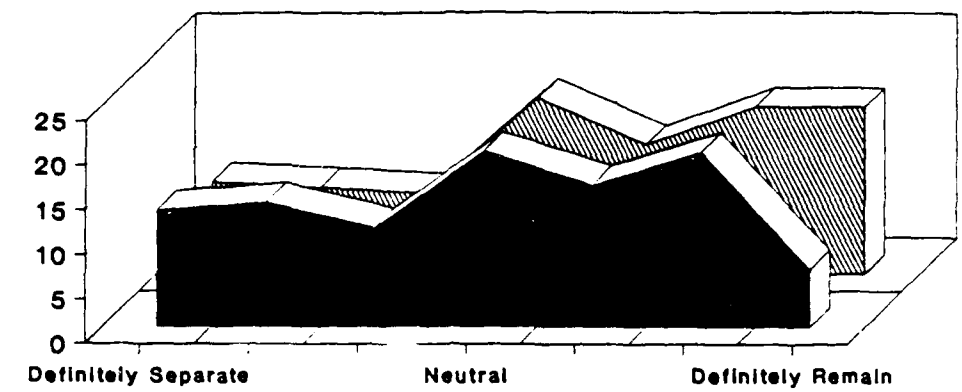
Conclusions

- Junior officers believe that engineering degree holders are used in non-engineering jobs
  - 28xx officers
  - 27xx officers
- Officers in the 27xx career field are more dissatisfied than the 28xx officers

Issues

- Do we properly assimilate engineering talent into the Air Force?
  - Are we hiring the right people?
  - Are we indoctrinating them correctly?
- Is the 27xx career field appropriate for new engineers?

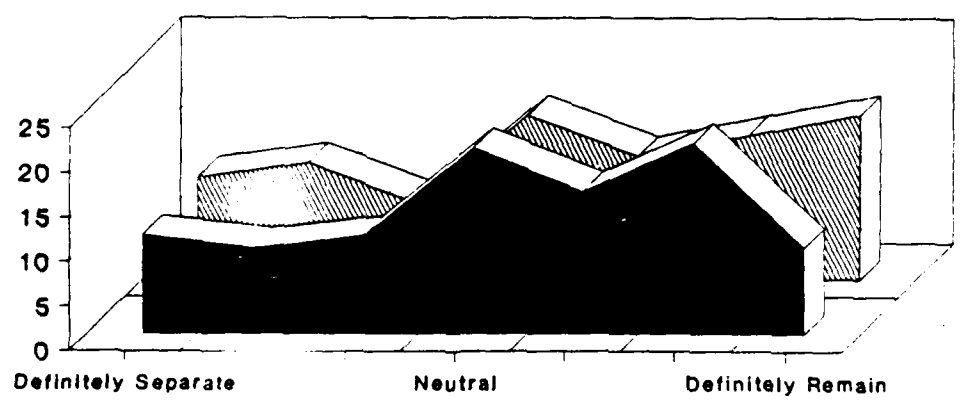
Career Intent
by Specialty Code



28xx	10.2	9.6	9	19.6	14.4	18.6	18.6
27xx	13.1	14	11.2	19.7	15.9	19.6	6.5

27xx 28xx

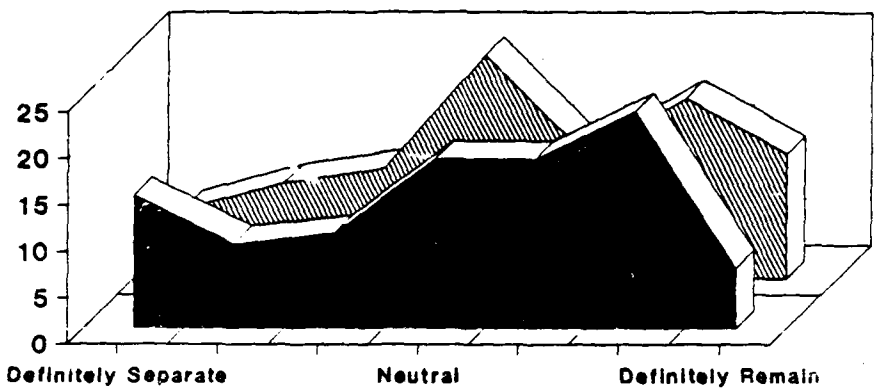
Career Intent
by Product Division



SSD	11.5	13.1	8.5	18.4	13.8	16.2	18.5
ASD	11.1	9.7	11.1	20.9	16	21.5	9.7

ASD SSD

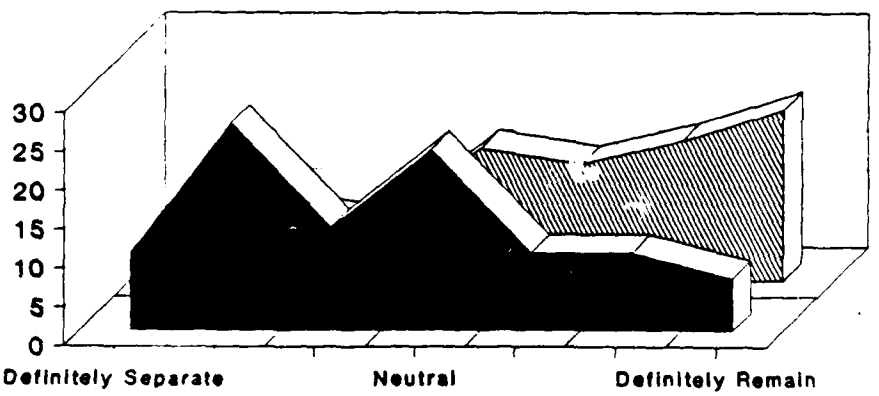
Career Intent
ASD 27xx vs ASD 28xx



ASD 28xx	7.5	10.4	11.9	24	13.4	19.4	13.4
ASD 27xx	14.3	9.1	10.3	18.2	18.2	23.4	6.5

ASD 27xx ASD 28xx

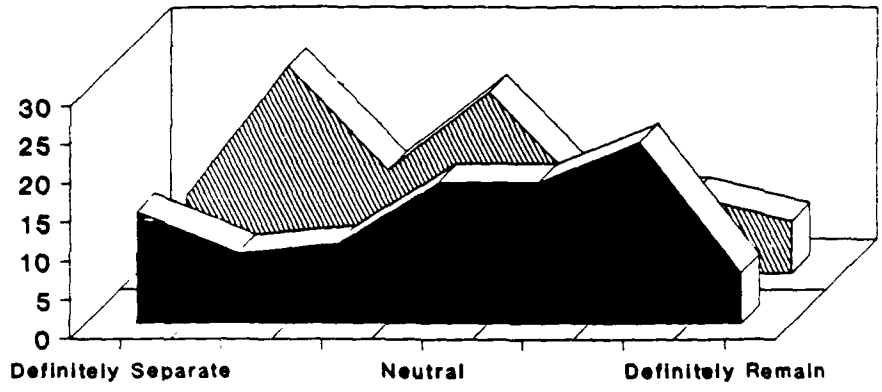
Career Intent
SSD 27xx vs SSD 28xx



SSD 28xx	12	9	7	17	15	18	22
SSD 27xx	10	26.7	13.3	23.3	10	10	6.7

SSD 27xx SSD 28xx

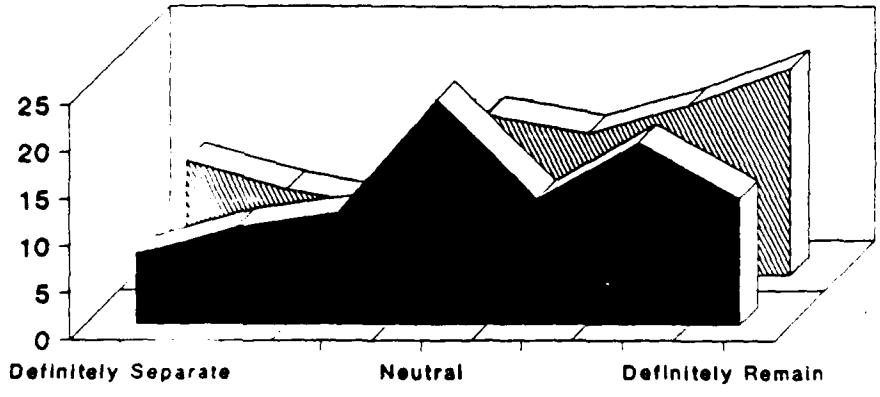
Career Intent
ASD 27xx vs SSD 27xx



SSD 27xx	10	26.7	13.3	23.3	10	10	6.7
ASD 27xx	14.3	9.1	10.3	18.2	18.2	23.4	6.5

ASD 27xx SSD 27xx

Career Intent
ASD 28xx vs SSD 28xx



SSD 28xx	12	9	7	17	15	18	22
ASD 28xx	7.5	10.4	11.9	24	13.4	19.4	13.4

ASD 28xx SSD 28xx

Applicability of Education
Means and Standard Deviations

Group	Mean	Std Dev
ASD 27xx	3.29	1.24
ASD 28xx	4.67	1.37
SSD 27xx	3.26	1.33
SSD 28xx	3.56	1.36
ASD	3.93	1.47
SSD	3.49	1.35
27xx	3.3	1.26
28xx	4.0	1.46

Job Expectations
Means and Standard Deviations

Group	Mean	Std Dev
ASD 27xx	4.24	1.19
ASD 28xx	4.85	1.21
SSD 27xx	3.62	1.27
SSD 28xx	4.55	1.18
ASD	4.52	1.23
SSD	4.33	1.26
27xx	4.06	1.24
28xx	4.67	1.20

Job Satisfaction
Means and Standard Deviations

Group	Mean	Std Dev
ASD 27xx	4.46	1.08
ASD 28xx	4.99	1.05
SSD 27xx	4.36	1.27
SSD 28xx	4.77	.96
ASD	4.70	1.10
SSD	4.68	1.05
27xx	4.43	1.13
28xx	4.86	1.00

Career Intent
Means and Standard Deviations

Group	Mean	Std Dev
ASD 27xx	4.19	1.93
ASD 28xx	4.37	1.80
SSD 27xx	3.71	1.99
SSD 28xx	4.56	2.02
ASD	4.33	1.87
SSD	4.36	2.04
27xx	4.05	1.95
28xx	4.48	1.93

Air Force (Overall)

I like the job that I'm doing even though it doesn't require much of the education I have. Overall, I think the Air Force is a good profession and most of my fellow officers are a good people to work with.

[SSD, 28xx]

Overall I've enjoyed my Air Force career, but my present job is disappointing because it doesn't have very many challenges. Even though my duty AFSC is 2831 there is no R & D type work....

[SSD, 28xx]

Job Satisfaction (Overall)

My experience to date as an Air Force officer/ engineer has been very satisfying and personally rewarding--mainly because I have had the opportunity to tackle problems in the manner which I saw fit. I was given a great deal of latitude in my job, all the while with clear understanding of what was ultimately expected of me....

[ASD, 28xx]

I'm currently career broadening into this career field. So far, I find this to be a very interesting and exciting career field and would like to remain in this career field if I remain in the Air Force.

[?, 2724]

Responsibility

AFROTC prepared me well, but there was no job orientation course when I started. It was a shock and I had to learn it myself. But my job is great!! No other 22 year old in the world can have the responsibility I have.

[SSD, 27xx]

I am very pleased with my career field and job responsibilities. I do however feel that I could do a better job if my duties correlated more to my degree and past academic experiences. I feel also that I have more responsibilities than my peers merely because I was assigned to a relatively small SPO. I anticipate making the AF a career (tentatively as a 27xx).

[ASD, 27xx]

Pay and Benefits
(Positive)

...The answer is not more money--our salaries are more than adequate. We need meaningful work with duties that are commensurate with our education.

[ASD, 27xx]

...Good benefits and a decent paycheck aren't enough to keep the best officers. They're looking for something more.

[?, ?]

Bureaucracy

The senior management and the overall bureaucracy of the Air Force acquisition process make me very upset as a government employee and as a taxpayer! We are extremely inefficient and wasteful.

[SSD, 28xx]

...Also, it takes too long to get correspondence out of the office. By the time my superiors coordinate on, and rewrite "just this one line, here," the event the letter's about has already been completed, and often has to be redone because our contractor didn't get our inputs in time. Also, the letter looks nothing like the one I originally wrote, which often makes me wonder why the Colonel didn't write it himself to begin with.

[SSD, 28xx]

Clerical Duties

On paper and in description my 27xx career field looked good. In reality though, I'm embarrassed to tell people what I really do. I'm used as a secretary/clerk and as a net to catch all the additional duties that come through. I don't mind having additional duties, but not in place of real significant work.

[SSD, 27xx]

I have a great deal of responsibility which I enjoy, however, a lot of the work we do is just clerical because of the poor secretarial support we have--that gets discouraging at times.

[SSD, 28xx]

Engineering Jobs

Air Force wants to recruit and retain engineers, but doesn't want to let them do engineering work. Unless you're one of the few who get assigned to laboratory work, you end up managing contracts. If you get a SPO assignment you definitely don't get to do engineering. Most engineers want to do just that: engineer.

[ASD, 28xx]

Although I am thankful that the Air Force sent me to school to obtain an engineering degree, I feel they wasted their money....In general, I feel I am getting the best service from the AF, but I don't feel the AF is getting everything they can out of me. That should bother the AF because they are wasting the money they've invested in me.

[SSD, 27xx]

Education and Training

It is just about as difficult to get informal training as it is to get formal training...It is very frustrating fighting for information on how to do your job...I am sure things are good when you know what you're doing, but right now the Air Force seems bad--real bad.

[ASD, 27xx]

I am concerned about the lack of leadership in the Air Force. None of my supervisors have been effective managers or leaders. I have written both of my OERs to date, have never received career counseling or performance feedback. Supervisors should receive some kind of training.

[SSD, 27xx]

Pay and Benefits
(Negative)

The only way to balance the deficiency in creative opportunities would possibly be to reinstate some kind of engineering bonus. Retention will go up although the people still won't enjoy the work any more than they currently do.

[SSD, 28xx]

...I like the Air Force but I have a family to think of. At the present time we live from paycheck to paycheck....If the Air Force and Congress start the engineering bonus program again my decision would be to stay....

[ASD, 28xx]

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Captain Steven L. Pearson [redacted] He received his undergraduste degree in Astronautical Engineering from the United States Air Force Academy in 1982. He was first assigned as a UPT student at Reese AFB, Texas but was eliminated from the flying training approximately three quarters of the way through the program. He was subsequently assigned in July 1983 to the 6595th Missile Test Group, Vandenberg AFB, California where he spent five years in the test program for the Peacekeeper missile. In May 1988 he was transferred to the School of Systems and Logistics, Air Force Institute of Technology. [redacted]

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Associate Professor
Department of Systems Management

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Air Force junior officers in the 27xx (acquisition manager) and 28xx (engineer) career fields at Aeronautical Systems Division (ASD) and Space Systems Division (SSD) were surveyed to determine various attitudes toward their jobs. The purpose behind examining the job attitudes at ASD and SSD was to determine if the matrix organization at ASD was aiding in the retention of engineers and increasing the overall job satisfaction of Air Force junior officers in these two fields. It was hypothesized that ASD was better at distinguishing the engineering and management backgrounds of its officers through use of the matrix organization and that officers in jobs more closely related to their education and background would report more positive career intentions. The matrix organization at ASD attempts to match engineer and acquisition manager personnel to jobs which are closer to their backgrounds and education while SSD makes much less of a distinction between the two career fields.

Four variables were measured in the survey: applicability of education to the job, expectations of the officer about the job, overall job satisfaction, and career intention. The results revealed a significant difference between ASD and SSD in the degree to which officers believed their education was applicable to their jobs and the expectations of officers prior to entering active duty. No differences were found between product divisions in job satisfaction or career intent.

However, the survey included an area for comments which almost half of the respondents utilized. Of the 156 surveys containing comments, over 90% expressed strong negative emotions toward their job indicating a significant problem exists with the junior officer ranks. All comments were included in the appendix and a brief overview of the typical complaint categories is given.